

Gout, Its Cause, Nature,  
And Treatment:  
With Directions For  
The Regulation Of The  
Diet  
(1877)



John Parkin



# GOUT:

ITS CAUSE, NATURE, AND TREATMENT.

WITH

Directions for the Regulation of the Diet.

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ETC., ETC., ETC.

"*Tollere nodosam nescit Medicina podagram.*"—OVID, p. 1, c. 4.

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TO THE  
Real Academy  
OF  
MEDICINE AND SURGERY, BARCELONA;  
THIS EDITION, LIKE THE FIRST, IS INSCRIBED,  
AS A TRIBUTE OF RESPECT AND HOMAGE,  
AND AS A MARK OF SINCERE GRATITUDE FOR  
MANY FAVOURS AND VALUABLE ASSISTANCE RECEIVED  
DURING A PROFESSIONAL VISIT TO SPAIN,  
BY THEIR OBEDIENT, HUMBLE, SERVANT;  
THE AUTHOR.

*London, March, 1877.*



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## C A U S E.

THERE is, it has been truly said, no disease concerning the nature and treatment of which physicians are so little agreed as that of gout; so that to this moment it constitutes, perhaps, the widest field for empiricism, and the hottest for warfare, of any that lie within the domain of medical science.\* Indeed, as another author has remarked, "no other disease has produced so many works, and occasioned so many researches; no other has, up to the present time, baffled with more constancy the efforts, which have been incessantly made, to discover its nature; no other has been more rebellious and fatal to the greater number of theories, which the medical art has produced, during its uncertain but progressive march from age to age; no other has disconcerted more the different plans of treatment; no other has furnished such powerful weapons, or such bitter sarcasms, to the calumniators of medicine; no other, lastly, has been an equally prolific mine to empirical cupidity."†

\* *On the Study of Medicine*, by Mason Good, M.D., Vol. 2, p. 620.

† *Dictionnaire de Med. et de Chir. Prat.*, Tom. 3. Art. Arthrite.

This is a lamentable confession to be made twenty centuries after the appearance of the first work, that was written on the subject; and at a time, when the science of medicine is supposed to be based on fixed and scientific principles. These evils have doubtless originated from the fact, that we have hitherto been, and still are, in complete ignorance of the cause of the disease; for the different theories, as Dr. Barlow observes, broached on this subject, "have chased each other like shadows in a magic lantern, none abiding to announce to us the essential nature of gout. After ages of inquiry, we know it only by the order and character of its phenomena; and have yet to learn its intimate nature, or the special cause which produces it." \* Hence, the different and opposite modes of treatment, that have been proposed and adopted by medical men; and hence, also, the failure of the efforts of Art: for, as Celsus truly remarks, "it is not to be supposed that he, who is ignorant of the original cause of diseases, should know the remedy for them." It is of importance, therefore, to ascertain the real cause of gout, not only in a theoretical and scientific, but also in a practical point of view.

By the cause, I would beg to be understood as referring to that primary, or original, cause, which produces the gouty diathesis, or morbid state of the system; not those predisposing or

\* *Encyclopædia of Practical Medicine. Art., Gout.*

exciting causes, which merely favor or accelerate the development of a paroxysm, in those in whom the seeds of the disease have been already sown by the agency of another and more specific cause. The necessity for this division will be evident by a slight consideration of the subject, although authors have not, in general, attended to the distinction. In fact, as Dr. Roche remarks, not being able to perceive the relation between the morbid agents and the disease, these writers have noted all the circumstances in the midst of which gout has been observed to develop itself, and they have accused the whole of them in turn of producing it;\* although they could not possibly be the only or the efficient agents in its production, inasmuch as they are frequently found to prevail at other times, without giving rise to the same, or similar, effects. Thus, Cadogan was induced to ascribe the production of gout to three particular causes, viz., indolence, intemperance, and anxiety. These circumstances, however, can never be the sole or principal cause of the disease, inasmuch as we find individuals, who have been brought under their combined influence, but who yet escape attacks of gout. On the other hand, there are many gouty subjects, who are neither indolent, intemperate, nor vexed in mind or spirit; while it would be rare to find in others a combination of the three.

\* *Dict. de Med. et de Chir. loc. cit.*

causes, although one or even two may frequently exist. Such and similar circumstances can only favor the production of a paroxysm in those who have been already brought under the influence of the primary, or remote, cause of the disease—in which case, their influence may be allowed, and is readily understood.

Again: By some it is said, that the gout is hereditary, by which term many suppose that an explanation is afforded of the cause of the disease. But John Hunter clearly showed, long since, that there is no such thing in nature as an hereditary disease,—it is the disposition to a disease only that is hereditary. Besides, if the disease were hereditary, we should expect to find, that those predisposed to it would be attacked early in life. But, as Heberden remarks, a case of genuine gout before the age of puberty is, with some rare exceptions, unknown. Another and a specific cause, therefore, is necessary in this case the same as in the other.

There are, also, other circumstances, which act more powerfully than the preceding in exciting the disease. Thus: violent rage or anger, the sudden application of cold to the surface of the body, and, more commonly, too great a quantity of wine, will often bring on an attack of gout; and they are then said to produce the disease. If by this term be meant the production of the disease, without the assistance of any other, or

more specific, cause, we must deny the inference ; inasmuch as the same agents are frequently in operation, without producing the same result. They can only act, therefore, by exciting a paroxysm in those in whom the gouty diathesis has been already formed ; the same as the former agents act, by predisposing the individual to be more easily brought under the influence of the primary, or specific, cause.

We thus find, that there are in this disease, as in many others, a specific, or primary, and, often, a predisposing and exciting cause ; the whole of which may be concerned in the production of a paroxysm, but of which the first is absolutely necessary, while the latter are only accidental, being sometimes present and sometimes absent.

In addition to these causes, there is another, and a very important one too. This is, what has been termed the proximate, or immediate, cause of disease. An individual may be exposed to the remote, or specific, cause of diseases, without experiencing an attack, as we constantly witness during the prevalence of epidemic diseases—a fraction only of the population, and, sometimes, a very small fraction, being affected. It is the same with endemic diseases. If a stranger traverses the campagna of Rome during the night, and in the unhealthy season, he will be almost certain to have an attack of ague afterwards ; but

the conductor, the driver, and other persons, or natives, in the same vehicle, will, in all probability, escape, although equally exposed to the influence of the same external cause, or agent. There must therefore be an individual, or internal, as well as a general, or external, cause in operation for the production of diseases, otherwise we should be unable to account for the variation in these respective instances. What this cause is, it will be desirable to ascertain.

The moment, however, says Dr. Good, that we enter the field of the PROXIMATE CAUSE of gout, we are bewildered in a hopeless labyrinth, without a thread to guide our entangled footsteps amidst the growing darkness. There has indeed been no want of attempts to explain the subject, but, thus far, they have been attempts alone—ingenious conjectures rather than enucleated facts.\* By turning to the numerous works that have been published on the disease, in order to ascertain the opinions which are held respecting the immediate cause of its production, we shall find, that they are almost as various and as numerous as the authors who have written on the subject. If, however, we endeavour to classify these different theories, it will appear, that they have varied principally at particular epochs; and that this variation accords with the difference of opinion which has prevailed, respecting the production of

\* *Op. cit.*

disease in general, during the long and progressive march of medical science.

In the first works that were written on the subject, or which are extant, it is stated, that gout is caused by the presence of some noxious or excrementitious matter in the blood,—an opinion then generally entertained with respect to the production of disease in general. This hypothesis, as to the cause of gout, continued to prevail for some centuries, as we may see by referring to the works of Hippocrates, Galen, Celsus, Paulus, Cegineta, Alexander Trallianus and other authors. Thus Galen states, that the disease is produced by the collection of some humour in the affected part; and he adds, it may be blood, phlegm or, simply, a crudity. Paulus Cegineta, in giving the same opinion, says; the prevailing humour is sometimes bilious, sometimes melancholic, but, for the most part, pituitous and crude—or, in other words, blood, bile, or phlegm. Alexander Trallianus also observes, that gout is produced by the bile which has insinuated itself betwixt the nerves, tendons, and ligaments. The Arabians followed nearly the same doctrine as the Greeks, for Haly Abbas says: “Arthritic diseases are collections of the superfluities in some joint, which is labouring under debility.”

This theory not only lasted some ages, but was the prevalent one until that period, when chemistry became generally cultivated, and

medical men, too much captivated by its seductive study, endeavoured to account for the production of diseases on chemical principles. For this reason, Paracelsus, and many others, concluded that gout was to be ascribed to the presence of tartaric and other acids or salts in the blood—a theory which has found numerous advocates from that time to the present.

That acids are generated in the stomach, and that they may be absorbed into the blood, during attacks of gout, is highly probable; while also it has been stated, by several writers, that there is actually an excess of one particular acid—the uric—in the urine of most gouty patients at the commencement of an ordinary attack of gout, and, also, at a later period. But it does not follow because this is the case, that the disease is produced by such substances, for we frequently meet with the same state in patients labouring under other diseases—particularly derangements of the alimentary canal. The excess of uric or other acids or salts in the blood, is, therefore, the effect of the same cause as that which gives rise to the gouty diathesis; or, to that derangement in the digestive functions which so invariably accompanies, if it do not precede, attacks of gout. This view of the subject has been taken by many writers, not only lately, but even at the time of the first promulgation of the doctrine. Thus, Dr. Copeland remarks, that this species of change is

merely one of the elements of the gouty condition ; while Van Helmont observed, long since, that we ought not to pay any attention to the fact of acids being present in the system, for they are always *the product* of the affection. On the other hand, there are some writers who contend, that the secretions of gouty patients are frequently alkaline, at the same time that there is a tendency in the blood to become alkaline rather than acid. This was the opinion of the celebrated Boerhaave, who, in alluding to the then prevalent theory, observes ; "the gout does not always arise from acidity, as we often find the exudation from a gouty joint to be *alkaline*." \* So, again, Colbatch, who, in his work on gout, has adduced a great many arguments to show that the state of the blood in this disease is alkaline, was induced to administer acids ; and with considerable benefit, as would appear from the cases which he has adduced in support of the treatment. We may therefore fairly infer, after such facts, that the presence of a free acid in the system is not the cause of gout.†

Since the preceding was written, or, rather, since the first edition of this work was published, in 1841, a similar theory has been broached

\* *Praxis Medica.*, p. 209.

† Referring to the chemical theories that prevailed in the 16th century, Sprengel remarks :—"The taste for analysis caused the ordinary path of observation—*the only one from which there is no fear of wandering*—to be neglected.—Vol. 5; p. 195.

by two English writers. Dr. Bence Jones says:—"Gout is the invariable result of the long continuance of the uric acid diatheses";\* and Dr. Garrod, a few years later (1848), in some communications on the subject, drew a similar conclusion. This idea was further developed subsequently, by the last-named writer, in a work specially devoted to the subject, which, as it has passed through three editions, and might therefore be considered a safe guide in the treatment of this disease, will require a distinct consideration. Having inferred, as the result of analysis, that there is an abnormal quantity of uric acid in the blood, during an attack of gout, this writer jumped to the conclusion, that this excess is the cause, not the effect, of the attack; thus affording another example of the common fallacy, among unphilosophical theorists, that coincidence is cause. Let us hear, however, what Dr. Garrod has to say on the subject. He remarks:—"The causes exciting a gouty fit are those which induce a less alkaline condition of the blood; or, which greatly augment the formation of uric acid; or, such as temporarily check the power of the kidneys for eliminating this principle."† By this we might conclude, that uric acid exists in the blood in a free state during attacks of gout; but this is not the case, as it is only found there in a

\* On Gravel, Calculus, and Gout, 1841.

† The Nature and Treatment of Gout. 1859 (p. 341).

neutral state—in combination with soda.\* This is allowed by Dr. Garrod, who says: "In true gout, uric acid, in the form of urate of soda, is invariably present in the blood in abnormal quantities, both prior to, and at the period of, the seizure, and is essential to its production." (p. 340) And it is remarked in another place: "Gout would thus appear partly to depend on a loss of power (temporary or permanent) of the uric acid-excreting function of the kidneys; the premonitory symptoms, and those also which constitute the paroxysm, arising from an excess of this acid in the blood, and from the effort to expel the *materies morbi* from the system." (p. 339) But the urate of soda is not a *materies morbi* under ordinary circumstances or *per se*; for it exists constantly in the blood in a state of health; it

\* Uric acid, which is formed principally from the disintegration, or metamorphosis, of the fibrous tissues, is secreted from the urine in the form of urate of soda; it is found in the urine of man and of all the carnivora, and constitutes the white excrement of serpents and other oviparous animals. It is sometimes deposited from the urine in a pure state and in a crystalline form, but this arises from the decomposition of the urate after its expulsion from the system: it is never secreted from the blood in a pure state. In addition to uric acid, a nearly similar principle, urea, is present in the blood in still larger quantities, the proportion being 0.018 per cent † Like the former, it is the product of the disintegration of the tissues, but, more particularly, of the muscular tissue: and is, like the uric acid, the form by which the nitrogen of the waste substances is expelled from the system. It is the function of the kidney to eliminate these principles from the blood: it cannot produce them itself.

† *Dictionnaire de Médecine, par Nysten, Art. Urée.*

can only act injuriously, therefore, when accumulated there in excess, which is Dr. Garrod's conclusion. As, however, this accumulation could only arise from the non-elimination of the uric acid from the kidneys—its natural outlet—it follows, that the quantity of uric acid, present in the urine, ought to be in an inverse ratio with the severity of the attack,—being least in the acute attacks, and greatest in mild ones. But is such the fact? This it will not be difficult to ascertain. Dr. Garrod has given us the result of the analysis of the urine in seven cases of acute gout, and in a certain number of chronic and irregular attacks, from which we shall obtain some important information.

Case 1.—“At the time the urine was examined, the right foot and ankle, and some of the smaller joints of the hands, and the right wrist, were inflamed with *acute* gout; . . . there was also considerable febrile disturbance present.”

*In this case, the amount of uric acid passed in the 24 hours was 5.95 grs.\**

\* The mean normal quantity of uric acid and of urea, passed in twenty-four hours, is, according to M. Becquerel, as follows:—

Uric acid.....	8.1 grs.
Urea .....	255. "

The quantity both of urea and of uric acid varies greatly according to the diet, being highest with a purely animal diet, and lowest with a vegetable one. The quantity is also nearly twice as great, when the urine is examined some hours after dinner, as in the morning, or when the subject is fasting. Both ingredients vary also according to age, being least in children and old people, highest in adults.

Case 3.—J. C., aged 57, was, at the time the urine was examined, "suffering from *acute* gout in the ball of both great toes, and in several other joints both of the upper and lower extremities."

*Here the quantity of uric acid passed in 24 hours was 3·76 grs.*

In another case—4—the symptoms of which were less severe than the preceding, the quantity passed in the same time was 8·12 grs.—the normal quantity. In the seven cases, the highest was 8·12 grs., and the lowest, 0·42 grs. (p. 160)

Let us now turn to the mild, or chronic, cases, of which the following is an example. Case 4, *bis*—"Has suffered from gout for many years. . . *No active gouty symptoms* at the time of the urinary examination." The quantity of uric acid passed in the 24 hours was 0·38 grs. (p. 168)

These results are in direct opposition to the theory, the quantity of uric acid secreted, and, consequently, the quantity retained in the blood, varying as much as 7 to 1; and this too in cases presenting nearly the same symptoms, or intensity. Then, again, in the mildest case of all (case 4, *bis*) the quantity of uric acid secreted was only 0·38 grs.; whereas, in one of the severest, the quantity was 8·12 grs.; so that, according to the theory, there would have been 6 times more uric acid in the blood in the mild case than in the acute,—the reverse of what ought to have

been the fact. What the quantity actually was, we know not, as no quantitative analysis of the blood was made; Dr. Garrod merely stating, that the blood, in all these patients, was *rich* in uric acid. But no deduction can be drawn from so vague a term.

The preceding is not the whole of the theory. Dr. Garrod also informs us, that "true gouty inflammation is always accompanied with a deposition of urate of soda in the inflamed part"; and that "the deposited urate may be looked upon as the cause, and *not the effect*, of the gouty inflammation." (p. 340) This conclusion is not only contrary to all analogy, but to all the facts with which we are acquainted. The deposition of urate of soda, in the affected joints, is a morbid condition; and must be referred, therefore, to some morbid antecedent cause,—to the stagnation of the circulation, or, in other words, to the state of inflammation. If, indeed, the local inflammation were caused by the deposition of urate of soda in the affected joints, how are we to account for the symptoms in cases of retrocedent gout, when the inflammation suddenly subsides, and as suddenly appears in some other part of the body? What becomes of the urate of soda in these instances? It could not have been absorbed, nor could it have been deposited in the newly-affected part, as there is not time, in general, for either result to occur; and yet, not a

trace even of inflammation will be found in the part previously attacked. Again, it so happens, that the symptoms, in the majority of cases of retrocedent gout, denote, not inflammation but the reverse, depression of the vital functions, and stagnation of the circulation—effects that cannot be referred to the presence of uric acid in the blood. Not only is this substance constantly present in the blood, to a certain extent, in health—being the product of the disintegration of the tissues and of the food—but it exists, in some diseases, actually in larger quantity than in gout. Such is the case in “eczema,” and some other cutaneous affections, as, also, in fevers, in cholera, and in Bright’s disease. But no symptoms similar to the above, or to those that occur in ordinary attacks of gout, are ever observed in such cases.

It is thus apparent, that the theory of Dr. Garrod is alike erroneous and illogical, for the urate of soda cannot be the cause of an attack of gout. Its accumulation in the system, even were it found to be always in excess, is due simply to its non-elimination from the system, in its normal quantity, by the kidneys. There are few diseases in which the different secretions of the human body are not more or less impaired,—some to a greater extent than others, according to the nature of the disease—while in the epidemic cholera they are entirely arrested,

during the stage of collapse. But as this effect is a morbid one, we must look to some antecedent cause for its production. As such, it is more logical to refer all the other effects, observed in this disease, to the same cause; particularly as we find that, in other instances, when there is the same or a greater accumulation of uric acid in the blood, no symptoms similar to those peculiar to gout are ever observed. But absurd and contradictory as this theory is, it is as nothing compared to the treatment that has been based upon it, as we shall hereafter find.

After the discovery of the circulation of the blood, and the consequent attention that was paid to the phenomena presented by the arterial system, the generality of medical men were induced to refer gout to the same causes as those productive of inflammatory complaints in general: an opinion that is entertained by some recent writers, and particularly by Dr. Bateman, Dr. Barlow, and Sir Charles Scudamore. This, however, is merely leaving the question where it stood, as the cause of ordinary inflammation, when not arising from external agencies, is as much an enigma as the cause of gout itself.

Of late years, and particularly since minute anatomy has been pursued with so much success, not only in elucidating the healthy functions of the human body, but, also, its morbid changes, another and a different theory has been broached

in order to account for the production of gout, in common with the majority of diseases. According to M. Broussais, this disease is caused by an inflammatory state of the intestinal canal; a doctrine which has received support from a large number of writers on the continent, and from several in this country—particularly Armstrong and Mackintosh. Were it true, as Broussais would have us believe, that all or nearly all diseases are produced by inflammation of the alimentary canal, we should still have to seek for the cause of this phenomenon, inasmuch as this state being a morbid, and not a natural, one, there must be some prior cause in existence to which it owes its origin. It is, therefore, infinitely more probable, that the inflammation of the alimentary canal is due to the same cause as that which produces it in the extremities, than that the one is an effect of the other, even were it proved, *which it has not been*, that the external affection is always accompanied or preceded by internal inflammation.

With respect to the signs of inflammation in the alimentary canal, which are sometimes detected after death, this circumstance, it should be remembered, is no proof that the same state existed previously to the manifestation of the external inflammation. Indeed, as Celsus rightly observes, "Nothing is more foolish than to think, that a man has been so in his lifetime as he is

found when he is dying, or already dead."\* Besides, it so happens that, while evidence of the existence of inflammatory action in the intestinal canal only exists in a limited number of cases, abundant proof can be afforded of other organs being affected by the gouty action, before as well as after the appearance of the local affection in the extremities. Thus gout is frequently preceded by inflammation of the eyes, of the pleuræ, of the membranes of the brain, of the stomach, and, in fact, of almost every organ and tissue of the body. As well, therefore, might we refer the production of the disease to these particular states as to inflammation of the intestines,—and even with greater probability, for we have more direct evidence of their existence. But such an inference would be quite inadmissible, as the irregularity and variety of their appearance would be sufficient to negative the conclusion. Independently of the above, it is impossible to suppose, that inflammation, however frequently it may be found to exist in particular forms of the complaint, can be the proximate cause of gout, inasmuch as the very opposite state is often present, during certain attacks and in certain cases. The disorder, in fact, as Dr. Barlow has already remarked, occurs under every condition of health, and in all degrees of animal power; from the highest vigour to that helpless debility, which can scarcely generate a paroxysm.

\* "Aphor. 9."

With respect to the theory that would ascribe the disease to plethora, there are, doubtless, more grounds for the conclusion, as this state is frequently found to be the precursor of an attack. If, however, by the term, we are to understand an increased fulness of the whole of the sanguineous system, the effect of repletion and increased action of the circulation, we must deny the inference, as this state is generally the accompaniment of debility, and of a failure in the powers of the circulation. We cannot, therefore, agree in the conclusion at which Sir Charles Scudamore has arrived, viz., that "excess of ingesta, beyond the powers of healthy assimilation, and the supply of blood demanded for the useful purposes of the body, is the material foundation of the disease;" giving rise, as this author infers, to plethora of the system, and subsequent inflammation in the extremities. In fact, Sir Charles himself admits, in another part of his work, that *abstinence* is the frequent cause of a paroxysm! That partial plethora, or a determination of blood to particular parts, as the internal organs, exists at the commencement of an ordinary attack of gout, and also, at a later period, in certain forms of the disease, every body must allow, the fact itself being undoubted; but, then, this state is not the cause, only an effect, of the disease, as will be more particularly explained hereafter.

We now arrive at the only remaining item in

the list of possible causes, which have been considered, and this is the presence of a morbid matter in the blood; a doctrine that has received supporters, not only previously to the promulgation of other and different theories, but occasionally, also, from that time to the present. Thus Demetrius Pepagomenos, who flourished about the year 1260, and whose work was published at Paris in 1558, states, that gout is occasioned by a collection of humours in the affected joint; these humours being the product of imperfect digestion, and of the retention of excrementitious superfluities, which ought to have been evacuated from the system. Sydenham, the English Hippocrates as he has been styled, entertained a nearly similar theory; while a late writer, Mr. Adam, the learned commentator of Paulus *Œgineta*, says, in one of his notes, in reference to this doctrine: "Notwithstanding its being little in repute, I am not afraid to declare that, in my opinion, it accords better with the phenomena of the disease, and is a more successful guide to practice, than any hypothesis which has been recently advanced." "Translate," remarks M. Troussseau, "in what is termed a more scientific language, the work of the English Hippocrates, and you will be surprised, while admiring the description which this great man has given of the gout, how little he has left to be done after him. Tormented, for many years, by the pains of a free (*franche*), or

regular, gout, he only spoke of normal gout, acute or chronic; but he spoke of it as a master, and we know next to nothing to add to what he has said."\*

If, however, we inquire into the nature of the morbid matter, we must draw a different conclusion to that of the ancient writers, who considered it to be either bile, phlegm, or blood; which last they supposed to be propelled into vessels that did not contain it at other times—a very natural inference for those who were ignorant, that the vital fluid circulated in the arterial as well as in the venous system. That bile, again, is not the cause of gout, may be inferred from the fact, that when there is an obstruction to the natural flow of this secretion, and the arterial system becomes, in consequence, overloaded with it, no attack is witnessed. With respect to phlegm, we have, in the first place, no reason to believe, that this excreted matter becomes absorbed into the system, or that, if present there, it would give rise to the effects in question; while we are certain, that the presence of healthy blood in the capillaries will not account for the phenomenon, inasmuch as they contain this fluid at all times.

Nor can we conclude, with Demetrius Pepagomenos, that the morbid matter is a product of imperfect digestion. That more or less disorder of the alimentary canal accompanies or precedes attacks of gout, there can be no doubt, particu-

\* *Clinique Médicale.* Tom. 8, p. 318.

larly in old and chronic cases. But then it does not follow, that this derangement is the cause of the attack, as it may be either an effect of the disease, or of the same cause as that which produces the other effects. This supposition would appear to be confirmed by the fact, that the functional disorder, now referred to, generally increases in proportion to the time during which the patient has suffered from the disease—this derangement being seldom apparent in primary attacks, or in the acute form of the complaint. Now, it is only during the first attacks, as one writer has observed with much truth, that we can ascertain, what is the probable cause of the complaint; the symptoms which are subsequently observed being, possibly, the effects of the cause or of the disease, and its continuance in the system.\* If this be true, it is apparent, that the derangement of the digestive organs, frequently witnessed during attacks of gout, cannot be the cause of the disease, otherwise we should observe it to prevail the same at one time as at another, and to precede, rather than to follow, the commencement of the malady. Independently of this, we daily witness functional disorder of the digestive organs, of every kind and degree—some characterised by the same symptoms as those which are observed in gouty subjects—without producing the effects under consideration. As,

\* *M. Roche, Dict. de Med. Prat.*

also, such derangements frequently continue during the life-time of an individual, it seems hardly possible to suppose that gout can be produced from such a cause.

That the morbific matter is not generated in the stomach, and that its production does not depend on any functional derangement in the digestive apparatus, we may also argue from the result that has attended the employment of stomachic and tonic remedies in this disease. On the supposition, that the *materies morbi* was the result of imperfect digestion, or that the latter was, in some way, the cause of the disease, various individuals, from the time of Hippocrates to the present day, have tried the effect of bitters and other stomachic medicines; but the result of the practice has not confirmed the views entertained respecting the nature of the disease, or the treatment which ought to be adopted in consequence. Thus, Cælius Aurelianus recommended, on the subsidence of the disease, a combination of remedies nearly similar to the celebrated Portland powder; notwithstanding, this author remarks, that those who made much use of bitters were frequently carried off by apoplexy—a fact that has been confirmed by modern writers, particularly by Boerhaave and Quarin. On this account, the administration of such remedies fell into disuse among the ancient Greek physicians, as also with those who imme-

diately followed them. In modern times, the Portland powder—which consists of gentian, birthwort, the leaves and tops of germander, &c.—was once extensively used for the treatment of gout, chiefly because it was found to prevent, for a longer time than in other instances, the external manifestation of the disease. But it became apparent, after a time, that those who resorted to it were carried off by apoplexy, asthma, or dropsy,—affections which were rightly imputed to the suppression of the external disease; and, in consequence, this remedy and similar ones have now been generally abandoned by the scientific part of the profession.

Other writers, viewing these apparent anomalies, and believing that the disease was produced from the presence of a specific poison in the blood, have referred the origin to infection. Now, although there are, if the accounts given by various writers can be believed, certain facts which would seem to prove, that an infectious matter is given out from the part affected, during attacks of this disease; still, the origin of the complaint can never be accounted for on this supposition, for a variety of circumstances could be adduced to prove its fallacy. One, however, may be mentioned; this is, that it is rare, although the disease prevails in particular families, for more than one person to be affected at the same time, while the doctors and nurses invariably escape.

But, although the presence of the preceding matters in the blood or in the system is insufficient to account for the production of gout, it does not follow, that there are no other substances capable of producing the disease, when present in the system.

That the presence of an extraneous or morbid matter in the blood, would be capable of giving rise to effects similar to those witnessed in this disease, we might presume, *a priori*; while the supposition is confirmed by what has been observed after the introduction of various poisonous substances into the animal frame. This is more particularly the case with man, of which numerous examples have been afforded. At the siege of Mantua, as Foderé relates, several individuals, who had partaken of horse flesh, half putrid, were attacked with *inflammation* and *gangrene* of the extremities. Again; irritation in the stomach, followed by an eruption on the surface, is often the consequence of a hearty meal of shell-fish, particularly muscles. But the substance most commonly productive of these particular effects is the ergot of rye, which, in small quantities, produces inflammation of the extremities, and, in large, mortification and death. These examples are sufficient to prove, that various morbid substances, when present in the system, give rise to irritation and inflammation, not only on the internal surface of the body, but, also, in the

extremities. By referring, therefore, all the symptoms witnessed in this disease to the presence of some morbid matter in the blood, we may possibly account for the production of gout; inasmuch as we find, that various poisonous elements, when present in the system, produce effects somewhat similar to those observed during attacks of this disease. That a something has been added to or engendered in the animal frame, at the time of an attack; and that it is subtracted from it, previously to the subsidence of the paroxysm, would seem probable from the nature of the disease.

In Japan, and some other eastern countries, an idea was entertained, that the matter productive of the disease is of a gazeous nature; and this led to the operation of puncturing the part with a needle, in order to let out the extraneous substance. The reported success of the measure, in those countries, and the benefit which has attended its use in the hands of Europeans, would lead to the belief that this opinion is not quite unfounded. That a gazeous and morbid matter exists in the blood, may be inferred from the fact, that the application of Pradiers-cataplasma generally produces a particular fætor from the inflamed part; and, what is worthy of remark, an evident amelioration of the symptoms always succeeds the extrication of this fætid gas. As the application of the same poultice to a sound

limb does not cause any foctor, we may conclude, that the gazeous matter either produces the disease or is a product of it. But the establishment of the fact, that the poison is of a gazeous nature, would not solve the problem as to its origin. This, as we see, still remains, notwithstanding all the theories that have been put forth on the subject. Such being the case, it is desirable, although the attempt may be considered somewhat rash and presumptuous, to try and ascertain what this agent really is, and the source when it is derived.\*

In the first place, it appears to me, that the cause of the failure to account for the origin of the matter, productive of gout, has arisen from the circumstance, that the source of the poison has been sought for *within*, instead of *without*, the body; and for the following reasons. Gout is found to prevail principally in the spring and autumn; while, on the other hand, it is peculiar to certain portions of the globe, being most prevalent in extra-tropical regions, or cold and damp countries, while it is as rare in warm latitudes. Now, these are circumstances characteristic of diseases which belong to the class termed endemic, the cause of which is external, and local; as it is only on this supposition, that

\* Aretaeus says, that the real cause, or essence, of the disease—the *materies morbi*—is known only to the gods:

“Causam quidem veram soli dii noverunt.”

we can account for their prevalence in certain situations, and their absence in others.\* Hence, gout is sometimes found to assume a malignant character during the prevalence of an inflammatory constitution of the atmosphere, as has been long ago remarked by Dr. Huxham; and Dr. Rush says, he has observed the same occurrence in Philadelphia. Gout again is sometimes epidemical, affecting the majority of the inhabitants of a district or country. This has been more particularly observed in Moravia, and some parts of Germany; although examples of the same kind have occurred in nearly all countries where the disease prevails. We have, also, some antient examples of the same kind, for Athenceus says: ‘Pithurnus has left it on record that, in his time, the mulberry trees did not bear fruit for 20 years, during which period gout prevailed so generally and so furiously, that it not only attacked men, but even women and children, as well as cattle—two-thirds of the sheep being carried off by it.’ In consequence of the failure in this fruit, an inference was then drawn, that mulberries were a preservative against gout; but, as the cattle were affected at the same time, the want of this article of diet could not have

\* In ancient times, Attica was considered to be the hot-bed of gout, as Achaia was of ophthalmia, whence Lucretius:

Gout clogs the feet in Attica, the sight  
Fails in Achaia.

been the cause of the disease. This must have been a general one—probably atmospherical—as it is only on this supposition, that we can account for the simultaneous infection of the human and the brute creation. As to the failure of the crops of mulberries, this circumstance is only confirmative of the above conclusion ; it being a matter of common observation, that vegetable, as well as animal, life is affected at such periods. In fact, the same accounts which inform us of the prevalence of epidemic diseases, invariably speak of atmospherical vicissitudes, droughts, inundations, and *failure in the crops*. The circumstance, therefore, of gout occasionally becoming epidemical, shows that the cause is general, and not individual ; or, in other words, that the agent productive of it exists in the atmosphere at these particular periods.

If, however, we draw such an inference with respect to the agent productive of gout, it becomes an important question to ascertain how it is generated, and what is its nature. Unfortunately, we have no direct means of solving the question, as chemical analysis has hitherto failed to detect the presence, in the atmosphere, of the poison termed Malaria, even when we have demonstrative proof of its existence at the time. It follows, therefore, that a poisonous matter, productive of disease, may exist in the atmosphere, in particular situations, notwithstanding that we

have no actual or chemical proof of its presence. But, although we have no direct evidence on the subject, we may obtain indirect evidence, which is sometimes as satisfactory, and equally conclusive. This is by observing the effects produced in man, when suddenly exposed to a tainted atmosphere—effects which so invariably follow the application of the exciting cause, that we have not only proof of the existence of this poison, and its presence in the atmosphere; but we also know, from repeated observations, the source whence it is derived, its specific gravity, the laws regulating its diffusion in the atmosphere, and the height at which it becomes innocuous by dilution in the surrounding air.\* But the point is, can this or a similar poison be present in the atmosphere, in those countries where the gout prevails? This can only be ascertained by inquiring in what countries, or latitudes, this invisible agent is known to exist; and if this or any other similar poison is diffused in the atmosphere in other situations.

Now, it is generally allowed, that, in all countries within, and some particular ones without, the tropics, such as Spain and Italy, the cause of the production of the majority, if not the whole, of the diseases peculiar to these climates, is to be referred to the operation of Malaria on the system. As regards other countries, however, such as England, for instance, the production of

\* *Vide "Causation and Prevention of Disease."*

the same or other diseases is not, in general, referred to this cause, although little doubt can exist as to the fact. This will be apparent to all who have perused the work of Mr. McCulloch on Malaria ; for a mass of evidence has been collected by this writer, which puts the question entirely at rest, by showing that it is the frequent cause of disease in this country, the same as in others usually designated malarious. But this conclusion is not allowed by the generality of the profession, it being commonly supposed that, in England, ague is the only product of Malaria. This error has arisen from the opinion that has hitherto prevailed as to the production of this poison ; it having been too generally concluded, that it is only a product of wet or marshy lands, and that it is never given out from dry soils. This, however, is altogether an erroneous impression ; for a person has only to visit a country like Spain, and he will find the self-same complaints prevailing on the dry, elevated, and almost sandy plain, on which the city of Madrid is built, as on the low and swampy plains of Valencia. Not only are common cases of ague witnessed in the former situation, but the severe form also of the complaint, or malignant ague. As there can be no doubt, that the cause, which produces the disease in the one situation, is the same as that which gives origin to it in the other, it shows, that the malarious poison exists in dry and elevated situations as well as in low and swampy ones.

We will therefore assume, for the moment, that Malaria is the cause of the majority of the diseases in England, the same as in those countries usually considered malarious; and that not only the different forms of fever, but gout also, are products of the same deleterious agent.

One of the reasons that may be offered, in proof of this conclusion, is the fact, that gout commences precisely in those latitudes, where some of the other diseases produced by Malaria either cease to be felt or only prevail to a very limited extent. Thus, if we refer to Spain, we shall find that, in the south, the principal complaints to be met with are, in the summer, remittent and intermittent fevers—the latter of a severe form—together with inflammation of the abdominal organs; but, in the winter, the common form of ague, with congestion of the liver or spleen, and, in other cases, inflammation of the chest or pleurisy. The same circumstance is observed in the central parts of Spain, and more particularly in Valencia, except that intermittents are more prevalent than remittents. That the former is the prevailing type of the diseases in this province will be apparent, when it is stated that, out of 3,000 patients admitted into the General Hospital in Valencia, the year I was there, three-fourths were labouring under intermittent fever—and this, too, in an institution which admitted every class of patients. When, however, we proceed to the north of Spain, as Catalonia for instance, we shall

find, that fevers are less general and less intense, while inflammations are more prevalent, and their character different, being more acute. Besides these, other diseases, either unknown or only observed occasionally in the preceding localities, prevail more generally; among these is gout, which is not uncommon in Catalonia, but very rare in the southern parts of Spain.

When therefore we remark, that ague, in some countries, is almost unknown, and that its place is supplied by other and chronic complaints, may we not infer, that they are produced, in all probability, from the same cause, and that the difference is to be ascribed to locality or temperature? That both these circumstances influence the production of disease, will be apparent by a reference to the difference which is observed in different countries, whether the temperature be the same or not. In the East Indies, dysentery is the prevailing complaint, being much more common than fever; but, in the West, the former complaint is comparatively rare, and the latter the prevalent one, although the temperature, perhaps, is the same in both situations. When, however, we come to other climates, where the temperature is different, we observe not only a difference in the type of the same complaints, but, also, a variation in the form which disease assumes. Thus, instead of the severe form of fever and acute inflammations of the in-

testines or brain, such as we witness in intertropical climates, we shall have, in extra-tropical ones, mild forms of fever or ague, and various inflammatory or, rather, congestive affections of the abdominal and, more particularly, of the thoracic organs. That all these affections are produced by the same poison, and that the variation observed is due simply to a difference of temperature, we may presume from the variation which is observed, even in the same locality, according to the elevation, or the temperature. Now it is a thing of constant occurrence, in warm climates, for the severest, or continued, form of fever to prevail in the plains, or lowest elevations; remittents, in situations somewhat above the level of the former, and ague, or intermittents, on the highest grounds. Not only shall we observe a variation in the type of the fever, according to the latitude, or temperature, but we shall also find a variation in the kind and degree of the inflammatory affections. Instead of the acute inflammations of the abdominal organs, productive of dysentery, abscess in the liver, etc., which are so common in situations where the severe form of fever prevails, we shall have mild attacks of the same kind, or affections characterised by a state of congestion rather than of inflammation, in situations in which ague is observed to prevail.

Observing this difference in the form and type of disease, in the same locality or in different

ones, merely from a difference of elevation or temperature, and when we have proof that the same poison is in operation, may we not also infer, that the variation, in those situations where other affections are witnessed, is produced by the same cause, particularly as we find, as was before stated, that the latter complaints commence where the former end? In confirmation of this hypothesis, I will only observe, that it is as probable, if gout be produced from the operation of a poison on the system, that this poison is malaria as any other—particularly as we are unable to account for the production of any other poisonous substance. This inference is strengthened by the fact, that there is a great similarity between certain forms of gout, and some of the diseases known to be produced by the above agent,—as the different forms of fever. That the cause of nearly all forms of fever and of gout is the same, may also be inferred from the circumstance, that a mixture of gouty and febrile symptoms has sometimes been observed, even in warm climates, and was particularly remarked by Dr. Hillary in the fevers of Barbadoes. Dr. Rush, also, has attempted to show, that there is an analogy between some of the symptoms of yellow fever and gout; and he, at the same time, adds: "Who can compare the symptoms and seats of both diseases, and not admit the unity of the remote and immediate causes of fever," or febrile affec-

tions—in which class gout is placed by this writer. Independently of the above reasons, it so happens, that the fever, which accompanies gout, is characteristic of the operation of malaria on the system; for it is generally remittent, and sometimes intermittent. This phenomenon, or intermission, is not only characteristic of the operation of malaria on the system, but it is one of the strongest arguments that could be adduced in proof of the origin of the disease, as we know of no other cause which produces the same effect.

It may, however, be argued, that gout, if it were produced from the operation of this poison on the system, ought to prevail more frequently, or to the greatest extent, in those countries where malaria most abounds. This objection, however, is met by the facts before brought forward, viz., that not only do the various forms of fever, but the different kinds of inflammation also, vary in different localities and countries according to the time of the year, or the temperature. As, in those countries where malaria most abounds, fevers are the prevailing complaints, we must not expect to meet with gout in such situations any more than pleurisies, and other affections, which are products of the same cause, and peculiar to more temperate latitudes. But, although rare, gout is not unknown in warm climates; while rheumatism, which, no doubt, is produced from the same cause, is not at all uncommon. Dr. Copland

states, that the severest case of gout which he ever saw occurred under the equator; while the Chinese, who were at one time supposed to be free from the complaint, are very frequently attacked with it—at least this is the case with the upper classes, or mandarins. In Japan, also, the disease appears to be very prevalent. The cause, therefore, of the infrequency of gout, in those climates where malaria exists to the greatest extent, must be referred to the warmth of the climate; and to those contingent circumstances which favour the production of general fevers, rather than local complaints, or inflammations. To show how much climate, or locality, has to do with the production of gout, I may refer to the interesting cases of two negroes, as reported by Dr. Quarrier. The father, it appears, died of the complaint at New York; and the son, who joined the ship to which Dr. Quarrier was attached in the West Indies, had been subject to attacks of gout, in America, some years before, but had no return of it during his stay in the West Indies. After the arrival of the ship in Europe, however, he had frequent and severe attacks.

If the above inferences be correct, we must not only conclude, that gout is produced by the operation of a poison on the system, but that this poison is that commonly known by the term *malaria*; the difference observed, between this disease and others, being caused by a difference of

climate or of temperature. The establishment of these facts is of great importance in a practical point of view, as will be more particularly pointed out, when we come to consider the proper course to be pursued for the treatment of this disease. It only remains to ascertain, whether the morbid phenomena presented, during an attack of gout, can be accounted for on the preceding theory—the presence of a specific poison in the blood. This will form, what has been designated by me, and a few other writers, "The Physiology of Disease," in contradistinction to the term "Pathology."

## “THE PHYSIOLOGY OF GOUT.”\*

Commencing with that which, if not the most common, is considered to be the most regular form of the complaint, and which is characterized by external inflammation, with more or less fever, we shall find, that the first symptoms, which the patient experiences, are, in general, lassitude, prostration of strength, and restlessness,—especially in bed,—with disappearance of the accustomed moisture from the soles of the feet; and, lastly, *chills and rigors*. These symptoms, which usually usher in the acute, inflammatory,

\* Although usually called “Pathology,” the term is evidently a misnomer. Pathology, strictly speaking, means the morbid state of the body, or parts of the body, discovered after death. But, with the exception of external diseases, and some few internal ones,—as the lungs, by the use of the stethoscope, and with this we are frequently deceived—there are no means of ascertaining what the actual state of the internal organs is during life, and in a state of disease. We can only judge of that from the symptoms, or the external morbid phenomena presented to our senses. Hence, another term would seem to be required. As the word Physiology is employed to elucidate the healthy functions of the human body, so the same term would seem to be the most appropriate in the elucidation of the aberrations of the same functions.

form of the complaint, are followed,—at an interval that varies under different circumstances, but which seldom extends to many days, and sometimes only to a few hours,—by heat and flushings, headache, and more or less general fever; at the same time that one or both feet, and particularly the ball of the great toe, become burning hot, attended with stiffness, and a sense of distention and weight;—symptoms which are followed by severe and darting pains, with throbbing in the affected part.

Now these are the symptoms, and this the course, which we usually observe at the commencement of the different forms of fever; the only difference being that, in the one case, the prominent symptom is fever, followed by local inflammation—for there are few fevers in which there is not a determination of blood to some particular part or organ;—and, in the other, local inflammation attended by fever. If, therefore, the phenomena presented by these particular forms of disease be alike, we may infer, that the cause productive of them is the same—for like effects must proceed from like causes. This, it has been inferred, in another work,\* is, in the different forms of fever, the presence of a specific poison in the system. That one particular class of fevers, viz., those which arise from the poison

\* *Vide Antidotal Treatment of the Epidemic Cholera. Chapt. Physiology of the Disease. 1st Ed. 1836.*

termed malaria, is produced by this cause, no one can hesitate to admit in the present day, although the manner in which the poison acts has not hitherto been defined or ascertained. My own opinion is, that the deleterious agent, which, as we know, is diffused in the surrounding atmosphere, enters the lungs with the air inspired, and becomes absorbed into the blood; for we have proof, that various gases, independently of oxygen, pass readily and quickly into the capillaries of the lungs, when introduced into the windpipe, either by accident or design. But the inference has been ridiculed by one writer, and he has tauntingly asked,—where is the proof of the presence of *my poison*, as he terms it, and its peregrinations in the body? Of course no direct proof has been, or is likely to be, given in the present state of our knowledge. If we have been hitherto unable to detect the malarious poison, when present in the atmosphere of particular places, and when we have demonstrative proof of its existence at the time, how can we expect to detect the same matter, when diffused in the blood, and when present, in all probability, in the smallest possible quantity? But, although no direct evidence has been, or can be at the present moment, obtained, respecting the presence in the blood of the poison productive of the different forms of fever, other and indirect proof may be afforded,—that by analogy,—proof, be it observed,

which is allowed to hold good in many other, and even more direct, sciences. If, as Sir John Herschel observes, the analogy of two phenomena be very close and striking, while, at the same time, the cause of one is obvious, it becomes scarcely possible to refuse to admit the action of an analogous cause in the other, although not so obvious in itself.

It has been already stated, that the introduction of various poisonous substances into the stomach, produces certain morbid effects, such as inflammation of the extremities and eruptions on the surface. So, also, the presence of a putrid substance in the blood will give rise to phenomena, similar to those witnessed in the preliminary and febrile stage of the different forms of fever. By referring to the experiments that have been made, from time to time, by various physiologists, with the express view of ascertaining the effects produced by the introduction of certain poisonous substances into the blood, more particularly septic ones, we shall find, that they resemble the phenomena which occur in the different forms of fever. Thus, M. Gaspard injected into the jugular vein of a dog half an ounce of fetid liquor, the product of the putrefaction of a piece of beef, mixed with the blood of a dog. Almost immediately after, the respiration of the animal became impeded, and a general prostration and partial suspension of all the vital functions—of

those under the control of the ganglionic system of nerves—soon followed. After a certain interval, these symptoms subsided, and general excitement of the vascular system, or fever, attended by dysenteric symptoms, supervened. Again: M. Magendie, who has also performed similar experiments, states, that it is sufficient to inject into the veins a few drops only of the putrid liquor of a fish to produce, in less than an hour, symptoms which had the greatest analogy with typhus and yellow fever.

These results show, that the presence of a morbid matter in the blood gives rise, in the first instance, to effects which denote depression of those functions over which the ganglionic system of nerves presides—being the same as those deranged in the preliminary stage of all fevers, and in that of the disease now under consideration. As, also, these effects are the *immediate* consequence of the injection of the matter into the jugular vein, we may infer, that the situation of the poison, at this period, is either in the great venous centres, pulmonary organs, or right side of the heart—situations in which the ganglionic system of nerves would be principally, if not exclusively, affected. If so, we may conclude, if gout and the different kinds of fever are produced from the presence of a poison in the system, that, in the preliminary stage of these diseases, it is in the same situation—for the analogy of the symptoms would lead to this conclusion.

As also, after a certain interval, the above phenomena subside, and are followed by others, which denote derangement in the functions of the capillaries of the skin ; we may further infer, that the derangement in question is produced by the propulsion of the morbid matter, with the current of blood, into these vessels : as it would seem difficult to account for the variation in the symptoms in any other way.

There is, doubtless, a marked difference between the ordinary forms of fever and gout. In the former, the morbid matter is diffused, generally and equally, in the capillaries of the skin ; in the latter, in the capillaries of one or more joints. Still, as there are few cases of fever met with unaccompanied by inflammation, so, on the other hand, there are few cases of gout unattended by more or less fever. The difference, in the two forms of disease, would therefore appear to be a difference of degree only ; caused, as we may infer, from a variation in the quantity of the poison present in the system.

The preceding are the effects usually observed in young and plethoric subjects—particularly during the first attacks, or in the first years of the prevalence of the disease. But in others, whose constitution is not so strong, or who have suffered from repeated attacks of the disease, a different train of symptoms is observed. Instead of chills and rigors, and the other symptoms premonitory of the different forms of fever, and

which, in gout, are usually of short duration, we have a variety of anomalous affections chiefly referrible to the digestive organs. In these cases, there is either an unnatural craving for food or a want of appetite, with nausea, oppression at the stomach after a meal, flatulency, heart-burn, acrid eructations, and, sometimes, vomiting. There is also, generally speaking, a sense of coldness at the pit of the stomach in this particular form of the complaint.

At the same time, other symptoms, which usually accompany great derangements of the digestive functions, are found to be present. These are, a costive, and, occasionally, an irritable or relaxed state of the bowels; the stools being offensive, or unnatural in colour, and showing a deficiency or alteration in the quantity and quality of the bile. The urinary secretion also partakes of the general disturbance; it becomes scanty, high coloured, and deposits a pink or lateritious sediment; sometimes, but rarely, it is light coloured and copious, without any sediment. In addition to the above, there is pain, or uneasiness, in the hypochondrium, with a sallow, or yellowish, cast of countenance—thus indicating, like the state of the bowels just referred to, a faulty action in the liver, and morbid change in the secretion of bile. Sometimes, notwithstanding the above symptoms, the appetite continues good, but more or less irritation or slight fever generally follows.

too full a meal; while the patient is neither strengthened nor nourished by his food; he appears listless and inactive, and is troubled with palpitation on any agitation of the mind or from slight exertion. At the same time, the mind is more or less hypochondriacal; the temper irritable; and the sleep unrefreshing and disturbed by disagreeable dreams.

After this state has continued for a longer or shorter period, varying in different individuals and under different circumstances, the local affection becomes developed: but which, like the constitutional one, is different from what is observed in acute attacks. In the first place, the inflammation and pain are not so severe as in the latter form of the malady; the redness of the surface is less, and the oedema of the part greater; while the bursae and sheaths of the tendons are more frequently the seat of the disease. Cramps in the limbs are generally observed, and are more severe in this form of the complaint than in the other; but the power of moving the foot or limb is greater than in acute attacks. There is seldom any fever attendant on the local complaint; on the contrary, the circulation is languid and oppressed, being indicative of a state of congestion rather than of increased circulation.

Observing this variation in the attacks of gout, we must conclude, if the disease be produced by the operation of a poison in the system, that the

difference of type, between this form and the other, is due, either to a difference in the quantity of the poisonous matter present in the blood, or, else, that, from some accidental circumstance, the poison is differently distributed in the one case to the other. The latter is more likely to be the fact, as a somewhat similar variation is observed in the different forms of fever, and under circumstances which preclude the idea, that a difference in the quantity of the poison, present in the system, is the cause of the variation. Thus, continued fever is frequently converted into remittent, and remittent into intermittent. As this conversion of the one type into the other frequently occurs suddenly, and from some accidental circumstance, as exposure of the body to cold, or from a sudden change in the temperature; and as ague is the endemic of cold or temperate climates; we must conclude, that the supervention of this disease after attacks of continued or remittent fever, and its occurrence alone, in other cases, is due to the action of cold on the body; the collapse of the vessels on the surface or in the lungs; and the consequent determination of a greater quantity of blood to the internal organs, and, with it, of the poisonous matter present in the system.

By a parity of reasoning, if gout be produced from the same cause, or from the presence of a poison in the system, we may draw the same inference with respect to the variation of type

observed in this disease, when the symptoms present principally denote derangement in the chylopoietic organs. In confirmation of this opinion, it is to be observed, that ague, if it continue for any time, and if it resist the means adopted for its removal, is almost invariably followed by symptoms indicative of disorder in all the abdominal functions and organs. Hence the jaundiced complexion, the tumid abdomen, the enlarged liver or spleen, and the disordered functions of the stomach and bowels, which are constantly observed in those who have laboured under intermittent fever for a long time. In fact, it is these chronic affections of the abdominal organs, which produce so frightful a loss of life in all malarious districts; and which make the average duration of life one half what it is in other and more healthy situations. That the effects now described are due to the direct action of malaria on the system, few, we presume, will hesitate to allow. If, therefore, gout be produced by the presence of a poison in the system, we may conclude, that the effects previously described are due to the propulsion of the matter to the abdominal organs, or, rather, its retention there, in preference to other parts of the system.

On the other hand, the cause of the variation, now referred to, may be ascribed to that loss of tone in the system, which so usually accompanies attacks of this disease, particularly after the first

invasion; there being no doubt, that a certain degree of vital energy is requisite in order to generate a paroxysm, or to propel the morbid matter to the surface of the body. Whether therefore we conclude, that the derangement of the abdominal functions is simply an effect of the propulsion to, or the retention of the morbid matter in, these organs; or whether we infer, that the latter is an effect of the former, due to other and different causes, the fact of the greater derangement in the chylopoietic than the sanguineous system, remains the same. As such, we may reasonably infer, that a greater quantity of the poison is determined to the internal organs than to the surface in chronic, or masked, gout; and hence the difference between this form and the acute, or inflammatory, form of the disease.

That the cause of the attack is to be ascribed to the presence of some morbid matter in the blood, may also be inferred from the sudden transference of the seat of the disease to another part of the system—a phenomenon which is not only frequently observed, but which forms so characteristic a feature in gout.

Now it may be argued, and, in fact, it is generally supposed, that the internal disorder, which supervenes on the suppression of the external one, is produced by a mere transference of the external inflammation to some internal and vital organ. Granting this to be the case, still, as this morbid

state is merely an effect of a particular cause, the removal of the effect presupposes the removal of the cause. But the internal affection does not always partake of the inflammatory character of the external one: it more frequently happens, that the internal malady, supervening upon an attack of acute inflammation in the extremities, is characterized by symptoms of an opposite character. "That inflammatory and congestive affections of various organs," says Dr. Copland, in his valuable article on this disease, "often occur in such circumstances cannot be disputed; but the practitioner should be prepared, also, to meet with many different and often anomalous disorders—to find some attended by the most intense suffering and distress; others, by a feeling of sinking or dissolution: others, by distressing anxiety, terror, and irritation; others, by spasmodic action and morbid sensibility; and, lastly, others by constant pain, internal heat, distension, tenderness, and other indications of inflammatory action. In some, the pulse is weak, irregular, fluttering, small, or intermittent; in others, excited, frequent, irritable but regular; or full, strong, and energetic. Some cases, even when the same organ is implicated, are attended by constant pain, a sense of increased heat, or of burning, remarkable tenderness, and excited pulse; and others, by remarkable depression, great languor, a sense of coldness, of weight, or oppression; a weak and

languid pulse, and a feeling of vital exhaustion and impending dissolution."\* If, however, we analyse the symptoms in cases of retrocedent gout, we shall find, that they admit of being separated into two distinct divisions; the one characterized by the usual signs of acute inflammation in the organ or part affected, and the other, by an opposite state, or one of depression. The former more properly belong to what may be termed irregular gout, for, in these instances, the inflammatory attacks as frequently precede as follow the manifestation of the external inflammation. But in cases of sudden retrocession, it will generally be found, that the symptoms, which immediately supervene, are those of depression of all the vital functions—such as a weak, languid, irregular, or intermitting, pulse, distressing anxiety, great languor, or a feeling of oppression, coldness of the extremities, and other symptoms indicative of impending dissolution, which frequently follows.† Now these are symptoms which denote derangement in the functions over which the ganglionic system of nerves presides, and which assimilate it, therefore, to the cold stage of

\* *Dictionary of Practical Medicine.*

+ This was the cause of the death of the great Lord Chatham, who went down to the House of Lords, while labouring under an attack of gout in the extremities, in order to protest against the folly of imposing a tax on the American colonies—the disease being suddenly transferred from the extremities to the heart.



malignant ague; for in these cases, the same as in the former, the functions over which the cerebro-spinal system of nerves presides remain intact and perfect.

It may be urged, that the comparison now made cannot hold good, inasmuch as, in malignant ague, vomiting and purging are observed, which is not the case in gout. In answer to this objection, it is only necessary to add, that these symptoms are not necessary accompaniments of the above disease, as we often meet with cases in which neither vomiting nor purging occurs. On the other hand, we sometimes witness both vomiting and purging in gout after sudden recession of the external disease; and to which the term gouty cholera morbus has been affixed. It was this particular form of the complaint that carried off Sydenham, the father of English medicine, after being a martyr to gout for many years. The slight variation, therefore, that exists under ordinary circumstances, between these respective diseases, would thus seem to be a matter of indifference; the analogy in other instances between the principal symptoms, or pathological states, appearing to be perfect.

If, therefore, the pathological condition of these two diseases, at the periods referred to, be alike, we must infer, that the one set of phenomena is produced from the same cause as the other. This, it has been my object to show, on a

previous occasion,\* is in intermittent fever, the depression of, or loss of vitality in, the ganglionic system of nerves, due to the presence of the malarious poison in the great venous centres and pulmonary organs. If, also, gout, like the former disease, be due to the operation of a poison in the system, we must draw the same conclusion with respect to those retrocedent cases which denote depression of all the vital functions, or those under the control of the organic system of nerves.

If this conclusion be correct, we hence derive an additional proof in support of our hypothesis, viz., that gout is produced by the presence of some morbid matter in the blood; as the phenomena presented in cases of retrocedent gout admit of explanation by a reference to this theory, the same as the other forms of the complaint.

That the variation observed in the different forms of gout, can only be referred to the operation of an agent, which exerts a different action in different organs; and that it does not arise from any peculiar state of the patient at the moment, such as loss of nervous energy, or debility, may also be inferred from the sudden subsidence of the state of depression, which is sometimes observed, and the supervention of inflammation and other symptoms of excitement,

\* *Vide "Antidetal Treatment of the Epidemic Cholera" (1st Ed. 1838), chapt. "Physiology of the Disease."*

either in the seat of the former local affection, or in some other part. Thus Dr. Copland, speaking of the symptoms produced in cases of retrocession, observes, that they are sometimes characteristic of great depression of the vital functions, sometimes of a spasmodic, or nervous, character, and sometimes of inflammation or febrile excitement. And he adds: "I have seen it all these, in succession, in the same retrocedent affection, and *within a few hours.*" When therefore we remark, that the external affection, or inflammation, and the febrile excitement suddenly subside, and are followed by symptoms of depression, or vital exhaustion; and that these, in their turn, as suddenly disappear, and are succeeded by general increased action and local inflammation, either in the same part or in some internal organ; it would seem difficult to account for these apparent anomalies except on the supposition, that the disease is produced by the presence of a morbid agent in the system, and that it is occasionally transferred from one part of the body to another, by certain causes. Not only, as we have seen, are different effects produced from the same poison, when present in the body, according to its situation, or the organ that is subjected to its influence, but we have proof, that various poisonous agents, when absorbed into the blood, pass with great rapidity from one part of the system to another.

Thus, various poisonous substances, which had been introduced into the stomach, were discovered by M. Foderè in the urine of the animals subjected to the experiments, in the short space of five or six minutes. The animals being killed, and opened immediately, traces of the same substance were found in the serum of the blood, drawn from the thoracic portion of the venæ cava; the right and left cavities of the heart; the aorta; the thoracic canal; the kidneys, etc.\* It is evident, therefore, as M. Orfila has remarked, while detailing the above results, that the poison had been conducted from the stomach to the bladder by the ordinary channels of the circulation. But then it may be supposed, that a different result would be witnessed, in cases in which the poison is situated in the vessels of some joint—as we have presumed is the case in ordinary attacks of gout. This, however, is not the fact; for the absorption of the various classes of poisons—those at least which are soluble in the blood—takes place the same from the extremities and external surface of the body as from the stomach and intestinal canal. In truth, the absorption of the poison is frequently more rapid when applied to the cellular tissue, or to a wound on the surface, than when introduced into the stomach; of which the poison of serpents affords a good illustration.

\* *Journal de Physiologie expérimentale, par Magendie, T. 3, p. 44.*

According to Fontana, who made more than 6,000 experiments respecting the effects of the bite of serpents, it appears, that after a certain interval, which varies in different individuals, or according to the quantity of the poison applied to the part, a general prostration of the vital powers is experienced; there is more or less disorder of the stomach, with vomiting; the pulse becomes small, concentrated, and irregular; the respiration is impeded; cold, clammy, and profuse, perspirations take place; and the patient dies, in general, in a state of confirmed collapse. That the result witnessed, in these instances, depends on the transport of the poison to the centre of the circulating mass, we may infer from the effects which are observed, such as vomiting, syncope, difficulty of breathing, cold sweats, and small or irregular and weak pulse, etc.—symptoms which denote derangement in the functions of the abdominal and pulmonary organs, as well as of the heart. This inference is confirmed by the fact that, when means are taken to prevent the absorption of the poison into the blood, and its passage towards the heart, the above symptoms are wanting, and no ill effects arise from the bite or from the introduction of the poison into a wound. On the other hand, the nearer the wound is to the heart, or the shorter the transit of the blood from the vessels of the part bitten to the centre of the circulating system, the more

rapid are the effects; while the injection of the same poison into the jugular vein causes the death of the animal in a still shorter period; thus showing that it is not until the poison reaches the heart or pulmonary organs, that it exerts its full force, or power.

When therefore we find, that a poisonous substance, which has been applied to the extreme vessels on the surface of the body, is rapidly absorbed, and is conveyed to the centre of the circulation—producing, by its presence there, depression and annihilation of all the vital functions—we can be at no loss to understand the manner in which the matter productive of gout becomes translated from one part to another, if, as we have inferred, the poison is contained in the capillaries of the part where the local inflammation is situated. As these vessels terminate in the extremities of the veins, it is clear that the poison, if it were suddenly expelled from this situation by any cause, would be propelled into the venous radicles, and pass on, with the current of blood, to the centre of the circulating system. These conclusions granted, we shall be enabled to account for the different forms of gout, as, also, for the cases of sudden retrocession, on the hypothesis of a morbid matter in the blood.

There are, also, other means by which we may arrive at the same conclusion; this is, from a consideration of the remedies, or plans of treat-

ment, which have been adopted, from time to time, for the removal of the disease—their success in particular cases, and their failure in others.

If, for instance, gout be produced from the operation of a poison, and if this poison be present, during particular periods, or certain stages of the disease, in the internal organs, or great venous centres, we can understand why cathartics would be useful and beneficial in such cases; for their operation must tend to expel extraneous and other matters present in these situations. But, in other instances, or in other stages of the disease, and when, as we have inferred, the poison is present in a different part of the body, as in the extremities, the administration of such remedies cannot be followed by the same beneficial results. On the contrary, they may be, as they have often been found, actually injurious; by irritating the intestinal canal, they have caused a derivation of the offending matter from the exterior to the interior—from an unimportant to a vital organ. Hence, the fatal terminations which have sometimes followed the administration of purgatives; and hence, also, their condemnation by many authors, as Sydenham, Warner, Heberden, and nearly all French writers. The same want of discrimination in the administration of purgatives, during the interval of the attacks, has sometimes been attended with the like result—a fact noted as long back as the time of Paulus Cegineta, who

thus expresses himself. " Of those who attempt to get rid of the complaint by continuing under a course of medicines for a complete year, many, who suffer from pituitous and redundant humours, have been benefitted thereby ; whereas such as are of a hot and dry temperament have brought on sudden death, the offending matter being translated to the intestines, kidneys, side, lungs, or some vital part."\*

So also with emetics. As their operation would tend to remove extraneous and other matters not only from the stomach, but, also, from the portal and abdominal veins when present there, they have sometimes been found beneficial ; while, in other cases, they have proved hurtful by checking the determination of blood to the surface, and producing a sudden revulsion of the morbid matter to the internal and vital organs. On this account, Sydenham condemned the use of emetics, as well as purgatives, altogether, saying ; " It is a fixed law of nature, and interwoven with the essence of this disease, that the morbific matter ought always to be translated to the joints. Emetics or cathartics, therefore, will only invite the gouty matter back into the blood, which was thrown off by nature upon the extremities ; and hence, what ought to be thrown upon the joints, hurries, perhaps, to some of the viscera, and so endangers the life of the patient, who was quite safe before."†

\* *B. 3., ch. 78.*

† *Tractatus de podagra.*

It is the same with another class of remedies—diaphoretics—which have not only been strongly recommended by some writers, but are without doubt most valuable adjuvants in the treatment of gout, at particular stages, and in particular forms of the disease. As, however, they can only prove beneficial by relaxing the exhalents on the surface, so as to allow of the escape of the pent-up matter, when confined in the external capillaries; we can understand why they should be useless, in those cases in which the morbific matter is situated in the internal organs, or venous centres. In the latter instance, they would, by the nausea and depression which the one class of diaphoretics produce, favour still more the accumulation of the poison in the central and vital organs; while the stimulating properties of the other class might be injurious, by driving the offending matter, in undue quantity, not to the external surface of the body, but into the capillaries of some vital organ, as the stomach, intestines, heart, or brain. Hence the caution which some writers give as to their employment; and hence, probably, their total rejection by others in the treatment of the disease.

We are also enabled to explain, on the same hypothesis, why the practice of those who consider the disease to be of a purely inflammatory or congestive nature, should have been as successful in certain cases as it has been injurious in

others. Thus, in strong and plethoric subjects, the abstraction of blood, both general and local, will not only tend to lessen the force of the circulating mass, and to remove the plethora of the blood-vessels, but it must, also, by its well-known effect in opening the pores of the skin, and increasing the whole of the secretions, be a powerful adjuvant in the removal of morbid matter from the system. But, in other instances, a totally different result would be witnessed; for although, under certain circumstances, as when the greater part of the poison is contained in the venous centres, the operation would have the effect of removing a portion of the morbid matter out of the system, it might, at the same time, be injurious in different ways. If adopted, at the commencement of the attack, it might, by the depression subsequently produced, prevent reaction, and the propulsion of the poison to the external surface—a salutary effect—and favour its translation to some vital organ. This is not all. The interesting experiments of Majendie on the influence of blood-letting, in causing the absorption of different poisons, when taken into the stomach; and the result which has been observed in cases of poisoning, in the human subject, plainly show, that the effect of certain poisonous substances is much greater, and their action much more rapid, after the operation of blood-letting—or, whatever lessens the quantity,

of the circulating fluid. On the other hand, their action is arrested by the injection into the veins of a sufficient quantity of water to cause plethora, and a partial arrest of the flow of blood. As, also, in the cases in which a poison has been applied to a wound on the surface of the body, either by accident or design, the abstraction of blood has been found to favour the absorption of the same into the system; so, also, by a parity of reasoning, this operation may tend to produce a similar result in cases of gout—provided that the capillaries of the part, where the inflammation is situated, contain, as has been inferred, a portion of poisonous matter. Hence, the injurious effects which have sometimes followed the abstraction of blood, in cases in which the disease has been seated in the extremities; and hence, also, the suppression of the external inflammation, and the supervention of symptoms which denote disorder in some internal organ. On these accounts, blood-letting has been entirely condemned by many authors; notwithstanding that it has been strongly recommended, in the acute form of gout, by the majority of writers from the time of Celsus and Galen to the present day.

The same arguments will apply to the local abstraction of blood by leeches, or scarifications; for although the effect and the danger would not, of course, be so great or so apparent, we can understand, why this mode of abstraction, like the

former, should be praised by some writers and condemned by others. Sauvages relates that Lazerni dissipated, by large blood-lettings from the foot, an attack of gout in a man who was anxious to be speedily relieved. Gilbert, Van de Heyde, and others, have witnessed similar results. But Barthez says that even blood-letting from the foot is not always devoid of danger, or inconvenience; while Mead says, "Experience teaches us, that we must not expect to cure gout by blood-letting, the effect of which, in general, is merely to cause the disease to shift its seat from one place to another."\* This is only what might have been expected, when means were taken to remedy an effect, without any reference to the removal of the cause—the presence of a poison in the system.

Although, therefore, the antiphlogistic plan of treatment has been adopted to its full extent, by certain practitioners, and its beneficial results, in particular cases, satisfactorily shown; others, who have followed the practice without discrimination, and who, consequently, have witnessed its injurious effects in various instances, have abandoned it altogether, because those who advocated it coupled a theory with its recommendation, which made it applicable, not to particular cases, or forms of the disease, but to all cases indiscrimi-

\* *Monita et precepta, ch. 2.*

minately. Hence, its too general adoption by some; and its as general neglect by others.

We may also explain, by a reference to the same theory, not only the variation, but the injurious results, which have generally followed the application of refrigerants to the external inflammation. This practice, as we might expect, has been more or less adopted and recommended by numerous writers, from the time of Hippocrates to the present day. Harvey, the discoverer of the circulation, had recourse to the practice, as we are informed by Dr. Heberden; but it was to Dr. Kinglake, of Taunton, that we principally owe the introduction, in modern times, of this dangerous and reprehensible mode of treatment.

That in certain cases, as in primary attacks, and when the energy of the nervous system remains unimpaired, and the constitutional powers great, such a mode of treatment may be adopted without any serious results, is not only probable but certain. It was under such circumstances, that the late Dr. Good resorted to it in his own person; but he wisely refrained from the practice after the disease had become more confirmed, and when his constitutional powers were reduced. This is a just view of the subject; for if recourse were had to such applications in individuals, whose nervous power was not sufficiently great to produce reaction, so as to counteract the immediate effect of the cold on the surface, it would

assuredly produce a retrocession of the disease; by driving the morbid matter to some internal and vital organ. The truth of this observation has, unfortunately, been confirmed by fatal experience; many deaths having been recorded, as the immediate consequence of this treatment, before its followers were induced to abandon it. As Brown considered that gout was a sthenic disease, he treated it accordingly by the application of cold; and wrote a work expressly to recommend this mode of treatment. Being subject to attacks himself, he, of course, adopted the same mode of treatment, and succeeded in suppressing the attacks, or, rather, the external inflammation. But, then, what was the result: he died, as might have been predicted, and as was to have been expected, of an attack of apoplexy.

We may also understand, by a reference to the same theory, how those causes, which have been designated *exciting*, favour an attack of gout; when the individual has been brought under the influence of the operating cause, or, when the morbid diathesis is already formed. The principal of these are those which produce a state of excitement, either of the mind or of the body. Thus, all powerful mental emotions, and more particularly anger, tend to excite a paroxysm; while the influence of the latter passion is such, that anger was said, by the antients, to be the midwife of gout. Sudden fright also acts in the same

way, but it is during attacks of gout, that its effect is the most striking and the most injurious. This is by suddenly removing the external affection, so that an individual, who before was unable to move his limbs or feet from the bed or the cushion, has suddenly sprung up, and walked across the room with the greatest ease. In these cases we must suppose, that the suppression of the external disease, or inflammation, was caused by the sudden transference of the poison to the internal parts of the body—the same as in cases of retrocedent gout from cold, and other causes. This shows that the circulation, although usually carried on independently of the brain, is and may be affected, as abundant facts prove, by mental causes. As, also, the *immediate effect* of fright is to produce collapse of the vessels on the surface,—as proved by the paleness of the countenance—and the *secondary*, an increase in the momentum of the circulating fluids; we can understand, why the same cause should produce a suppression of the external disease in those labouring under a paroxysm, and a manifestation of it in others, who, although not suffering from an attack at the time, had a poison lurking in the system. In such a case, it only required the addition of some slight cause to propel the morbid matter from an insensible organ to a sensitive part of the system.

Great and unusual excitement of the animal functions will also produce the same effect, in

persons liable to the disease. Thus, over exertion, or a few extra glasses of wine, or the use of the Bath waters for a few days, will often bring on a sudden attack of gout. The latter, indeed, have frequently produced a paroxysm in individuals, who, previously, had never suffered from an attack, and who had no symptom to indicate that the disease was lurking in the system. The way in which a paroxysm is produced by these causes is easily understood, if a poison be present in the blood at the time; the increased action of the vascular system, which is the effect of their operation, will naturally tend to propel the matter from the interior to the exterior—from an insensible, in fact, to a sensitive part of the body.

The same result may be produced from the sudden application of cold to the surface; for although the first and direct effect of its operation is to propel the blood from the surface to the internal organs, its secondary effect, when the powers of the system are not too low, is to cause re-action, and an increased flow of blood to the surface. Hence, cold may cause a sudden attack of gout, the same as those agents which produce direct excitement of the vascular system, and an increased flow of blood with determination to the surface.

It is also easy to explain, on the same hypothesis, how those causes which have been designated *predisposing*, favour or accelerate an attack

of gout. The principal of these causes are those which produce a state of depression of the nervous system; and they may be either mental or bodily. Thus, every circumstance which lowers the energy of the nervous system, and all powerful mental emotions, when long continued, and particularly the depressing passions, such as grief, anxiety, etc.,—favour the production of the disease; and this made Cadogan consider vexation as one of his three causes of gout.

Excesses of all kinds, both mental and bodily, will act in the same way; no matter whether it be over-excitement of the brain, or undue action of the animal functions. Hence Sydenham, who was a great martyr to the gout, consoled himself with the reflection, that “more wise men than fools are attacked by this disease:” while the antiquits considered gout to be the daughter of Bacchus and Venus. These different circumstances, although differing in their primary operation, have the same ultimate effect, which is that of depressing the nervous energy of the body; over-excitement of the mental and bodily functions producing, sooner or later, a state of debility—the same as those causes, the primary action of which is one of depression. If therefore the disease be produced by the operation of a poison on the system, we can readily understand how these different circumstances may favour the supervention of an attack, when the individual

has been brought under the malign influence of the operating cause; for we have ample proof, that the operation of every poison in the human body is greatly accelerated by a state of debility, or depression of the nervous system. This holds good, not only with respect to the different mineral and other poisons, which have been introduced into the system, either by accident or design—as the experiments of various physiologists have amply proved—but also as regards the operation of those agents productive of epidemic and endemic diseases. This was particularly remarked during the prevalence of the epidemic cholera; for the first victims to this modern plague were invariably those who were in a state of debility, and whose nervous energy had been reduced, no matter from what cause, whether disease, poverty, or intemperance. Mental emotions produced the same effect; nothing being more common than to hear of attacks of cholera after sudden fright, or with those who looked, with terror and dismay, on the slow but certain approach of the epidemic. As these different circumstances could only be injurious by depressing the energy of the nervous system, so as to place the patient in the most favourable state to be acted on by the morbid agent productive of the disease—for the same causes had been in operation from time immemorial, although it was only at this period that malignant cholera

was observed—so, in like manner, the same agents can only act in the production of gout, by placing the system in a favourable state for the operation of the morbid matter, productive of this disease. Hence the circumstances now under consideration may, and no doubt do, frequently act, not by causing the disease, but, by hastening the attack in those, and *only* those, in whom a poison already exists in the system.

*Hereditary disposition* is another of the predisposing causes; for although this circumstance cannot be the only, or real, cause of an attack of gout, it may, and doubtless does, act, by predisposing the individual to be more easily brought under the influence of the agent productive of the disease. The same thing is observed with consumption; and as the predisposition is generally to be referred to peculiarity of conformation, as a narrow chest, etc., we may conclude that, in the instances under consideration, the impaired constitution and debility of the nervous system has been transmitted from the parents to the children, the same as other peculiarities of body, or impairment of particular functions. This will necessarily predispose the individual to be more easily affected by the exciting causes of gout, in common with those circumstances before alluded to.

The suppression of accustomed discharges, whether natural or artificial, will also tend to

predispose the individual to be attacked with the disease, as the concurrent testimony of all writers abundantly proves. The reason is clear; for if gout be produced by the presence of a poison in the system, the suppression of any of the ordinary secretions and excretions or artificial discharges, will naturally tend to produce a greater accumulation of the poison in the body than what would occur under other circumstances—when the individual is brought under the malign influence of the remote cause of the disease.

We thus find, that the theory, which would ascribe the production of gout to the presence of a poison in the system, is that which we should adopt from analogy; as well as from the result that has attended the different modes of treatment employed, from time to time, for the removal of the disease; while, also, this conclusion is the only one that will account for the variety of circumstances, or causes, known to produce a paroxysm. As this, therefore, is all that can be expected from any theory, we will adopt the maxim of Sir Isaac Newton and conclude, that gout is produced from the operation of a poison on the system; for, when one cause, as this philosopher remarks, is sufficient to account for a phenomenon, it is useless to search for another.

## NATURE.

THE same contrariety of opinion exists respecting the Nature, as that which prevails respecting the Cause, of the disease—some writers considering that it is of a purely inflammatory, others of a congestive, and others of a purely nervous, character.

With respect to the first of these opinions, although inflammation is not, as previously inferred, the cause of gout, we may yet allow that this state exists in the majority of cases of the disease. But, although this be the fact, we cannot conclude with Dr. Barlow “that the paroxysm of gout invariably manifests an inflammatory character; and that, although the variation of the local or constitutional affections is so great, yet still that an inflammatory character marks the whole,”\* for the very opposite state to this frequently exists. “I have seen it,” observes Dr. Copland in his article on gout, “possessed of a distinctly nervous character, and consisting

\* *Cyclopaedia of Practical Medicine: Art. Gout.*

chiefly of remarkable depression of powers, with the abolition of the organ principally affected, and most intense suffering."\*

Again: A state of plethora has not only been supposed to exist in this disease, but has even been considered by some writers, as Sir Charles Scudamore, invariably to precede the attack, and to be in fact *the immediate cause of it.* Dr. Barlow also says, the intensity and duration of the paroxysm are dependent on the degree of plethora prevailing, although other circumstances may contribute to prolong the attack. That a state of plethora frequently exists in gout, has been already remarked in a preceding part of this treatise; but, that it is invariably present, and that it is the immediate cause of the paroxysm, cannot be allowed for a single moment, and for the reasons before mentioned.

"It is, therefore," as Dr. Copland has justly remarked, "indispensable to a correct view of the subject, to comprise all the elements forming the constitutional and local affections to which the term gout has been applied; for if we analyse the numerous phenomena preceding, constituting, and following, the disease; if we connect these with the causes most essential to their production; and if we refer to those agents which increase or diminish the severity of the symptoms, we must necessarily arrive at the conclusion, that gout

does not depend upon one morbid condition only, but upon several."

When, however, we come to inquire into the different morbid states produced by gout, our attention is at once arrested by the local and external inflammation, which is so generally present; and so invariably, in primary attacks, as to form the pathognomonic symptom of gout. The circumstance of gouty inflammation fixing itself so constantly in the fibrous structure of the joints, and chiefly those most remote from the centre of the circulation, is, however, one of its most striking peculiarities. But as the disease acquires inveteracy, and the constitution becomes enfeebled, the larger joints are successively attacked in its progress towards the centre of the system, until, at last, the viscera become involved in its ravages. In fact, as Dr. Rush has remarked, the great toe and the joints of the feet are no more the exclusive seats of gout than "the stomach is the throne of the yellow fever." But, as the inflammation usually commences in the extremities, especially in primary attacks, and continues there until the termination of the fit, except in old and complicated cases, it may be as well to inquire into the cause of the phenomenon. In healthy constitutions, says Dr. Mason Good, the weakest parts are the extremities; and hence, in such constitutions, these are the parts, as we have already seen, in which the gout uniformly opens its assaults.

Here it commences, and here it runs through its course, seldom migrating, or, when it does migrate, only passing from one extremity to another—as from foot to foot, or from one of the feet to one of the hands—and limiting itself to these quarters, because they are the weakest parts of the system: though, in a thoroughly sound constitution such migrations are not common. In unhealthy habits, however, the extremities are not the weakest parts of the system, but the central and internal organs, as the stomach, the heart, the head, the lungs, or some other organ; while several of these organs may, moreover, be equally debilitated, according to the idiosyncrasy, or to accidental circumstances. And, true to the general rule, we see the gouty principle, when roused into action in habits of this kind, fixing itself from the first on one of those important viscera rather than on the extremities; or, roaming from one to the other, and alternating its course from these organs to the extremities, or from the extremities to these organs. And, as metastases are rare where the system is sound, they become frequent in proportion as it loses this character, and especially in proportion to the amount of debility in particular parts.

Generally speaking, the disease shows a preference for the white fibrous tissues, in whatever part of the body the inflammation may arise; so that, as Dr. James Johnson remarks, in the liga-

ment under the sternum gout will imitate *angina pectoris*—in the periosteum it will cause nodes. It attacks the dura mater in the line of sutures, causing periodical headaches; the capsular envelope of the kidneys, and the coats of the arteries—as in the case of John Hunter.\* But, although gouty inflammation shows a preference, in general, for the fibrous tissues, it is not confined to these structures; it occasionally invades the muscular system, tendons, ligaments, periosteum, cartilage, and even bone itself. It will also attack the serous membranes, giving rise to gouty inflammation of the plura, the coverings of the uterus, intestines, &c. The mucous membranes are also liable to the same inflammatory affections; so that we have gouty ophthalmia; gouty fluor albus; gouty gonorrhœa; gouty catarrh or asthma; gouty cholera morbus, dysentery, colic, and diarrœa. The latter affection, according to Dr. Rush, is very common in the southern states of America, and is there known by the name of the “downward consumption.”†

Another phenomenon, peculiar to the disease, is the fever which so invariably accompanies the acute form of the complaint, but which is entirely absent at other times, and in other forms. As, therefore, it is not a necessary accompaniment of the disease, we cannot class gout, as some writers

\* *Pract. Researches on Gout.* Ed. 1816.

† *Med. Inquiries and Obs.*, Vol. 5.

have done, among the affections termed febrile: Still, as fever is one of the many effects produced by this disease, the fact of its occurrence must not be lost sight of in considering the nature, or pathological conditions of gout. As, also, the febrile stage of gout differs in nothing from the common forms of fever, it is only necessary to add that it is sometimes continuous, more generally remittent, and, occasionally, but more rarely, intermittent.

The effect of the morbid agent on the circulation, is not however confined to the capillaries of the skin; as, independently of inflammation and fever, various other affections denoting derangement in the circulating system are also observed. The balance of the circulation, in fact, especially previous to an impending attack, seems to be peculiarly liable to be disturbed by the slightest causes, so that we have an undue determination of blood to the head or to the heart—producing vertigo and symptoms of apoplexy, or sudden faintness, with suspension of the vital functions. These effects are, from their very nature, transitory, as they would, unless speedily relieved, produce fatal results; but there are others, belonging to the same system, which affect the less vital organs, and, being of a more chronic nature, are therefore more permanent. Thus there is, in the chronic form of the complaint, a state of more or less congestion of the whole venous system;

and particularly in the portal veins, giving rise to plethora of the liver and disorder in its functions : hence the variation and deficiency in the biliary secretion so common an attendant on gout. Hence, also, the haemorrhoidal affections which, in gouty subjects, have been so invariably ascribed to the same morbid diathesis as that which produces the other forms of the disease.

As these disturbances in the state of the circulation, are produced by the presence of an extraneous substance in the circulating system ; and as the renal function depends, so much and so intimately, on the healthy state of the blood ; we need not be surprised to find, that the origin of calculus in the kidneys and bladder has been ascribed to the same cause—that which produces the more characteristic effects of the disease. It cannot, in fact, be surprising, that calculus in the bladder should be caused by a state of the system, or of the blood, which gives rise, even in the extremities or on the surface of the body, to a deposit of calcareous and earthy matter—the kidneys being the natural outlets for the discharge of the *excess* of those salts, acids, and alkalies, which exist in the blood.

Independently of the above, there is another and a different class of affections viz., those termed nervous, which are produced by the same cause. The truth of this conclusion is more particularly apparent in those cases of retrocedent gout, which

have been before considered, when, from the intensity of the symptoms, we are better able to ascertain the functions deranged, and which, as was then shown, are those dependent, in general, on the ganglionic system of nerves. "Formerly," says Dr. Copland, "the internal affections, thus connected with the disappearance of gout, were too exclusively viewed as nervous, and treated as such, notwithstanding the indications of inflammatory action sometimes attending them. More recently, and even at the present day, a very opposite opinion has been promulgated, more particularly by Dr. Gregory, Dr. Bateman, and Dr. Barlow. Fully admitting the inflammatory character of these consecutive affections, in some cases, I must strenuously contend, that it does not constitute the principal feature of them in others. In several instances, three of which occurred in medical men in this city, an inflammatory state could not be inferred, either from the sensations of the patients, or from any symptoms that I observed; and, as the treatment founded upon the gouty and nervous character of the disease was successful, there is no reason to infer, that a latent inflammation had existed in these cases." John Hunter, also, speaking of the retrocession in gout, says; "I should be inclined to suppose, that its effects on the brain or stomach are not similar to those on the extremity; or, probably, it does not advance so far in its effects to

them, or it would certainly kill." Sir Charles Scudamore, in alluding to this opinion, adds; "It appears *a useless discussion*, in a practical point of view, to argue upon the identity of the phenomena in these particular situations—we see that certain events follow the certain antecedent, and that is sufficient." To me, however, it appears to be of the greatest moment to ascertain, if the internal affection partakes of the character of the external one, in cases of retrocession; for, on this point, the treatment of the disease will mainly depend. Sir C. Scudamore may have made up his mind that, when the external inflammation leaves the extremities, the internal affection which supervenes is of the same character: but there are others, who entertain a different opinion on the subject, and who believe that, in certain cases of retrocedent gout, a state of depression rather than of excitement is observed. "Having," says Dr. Copland, "treated several cases of retrocedent gout, and being thereby induced to observe closely, and to reflect upon the phenomena attending it, and the effects of the treatment adopted, I am morally convinced that *exclusive views*, as to either the nervous or the inflammatory character of the internal affections, are incorrect; and that it requires the utmost acumen, on the part of the practitioner, to discriminate between these states, and to detect their varying shades." In fact, a mistake on this point might be fatal to the patient.

In addition to the above, there are other and anomalous affections to which gouty subjects are more particularly liable; such as certain forms of hypochondriasis, or melancholy, hysteria, and other similar affections; the symptoms of which, at particular times, would lead to the belief that they are products of the same cause, or of malaria, being characterized by disorder in the same functions as those which are deranged in some of the ordinary forms of gout. When, therefore, they occur in individuals liable to the disease, we may reasonably infer, that they are produced by the same cause—an inference that is strengthened by the fact, that these affections frequently precede ordinary attacks of gout, while the supervention of the external inflammation generally puts an end to the train of nervous symptoms then present. This conclusion is in accordance with the opinion of a number of writers; while some have been induced to infer, that the same symptoms, even when occurring in individuals, who have not suffered from any open, or specific, form of the disease, are also due to the operation of the same cause. Dr. Johnson, in his work on this disease, remarks; "a thousand facts might be brought to bear on this point, and induce us to believe, that gouty and nervous affections are intimately connected; are influenced by similar circumstances, and have, perhaps, one common origin." Be this as it may, we know that gouty

patients are peculiarly liable to be attacked with nervous symptoms of a varied and undefined character; symptoms which may usually be referred to depression of those functions, over which the ganglionic system of nerves presides.

Gout is not only all these in succession or separately, at different times and in particular individuals, but we occasionally meet with combinations of one or more of these particular states. Thus, we may have the arterial, or circulating, and nervous systems jointly affected, and producing, as Dr. Rush observes, in the brain, *coma*, *vertigo*, etc.; and, in the nerves, *hysteria*, *hypochondriasis*, *syncope*, etc. There may also be a state of inflammation, and a state of atony at the same time; or, an affection of the cerebro-spinal nerves in one part of the body, and of the ganglionic in another, giving rise to a state of excitement in the one case, and the reverse, or a state of depression, in the other.

We thus learn, that gout is sometimes of an inflammatory, sometimes of a congestive, and sometimes of a nervous character; and that it assumes a variety of forms in different individuals and under different circumstances. It is, therefore, neither a purely inflammatory, nor yet a purely nervous disease; nor is it characterised by an affection of one particular part of the body, or one particular system of nerves; it attacks every organ and tissue, and produces a disturbance in

each part of the circulating system, and in every function of the body—the same in those which are under the direct control of the cerebro-spinal, as in those which are under the influence of the ganglionic nerves.

To view gout, therefore, as Dr. Barlow and other writers have done, only “as a constitutional disturbance of an inflammatory character, attended with local inflammation of a peculiar kind in one or more joints,” would exclude from our definition a series of effects evidently allied to the former, and produced by the same cause. The definition of Frank is not only more general, but, also, more correct. “Gout,” he says, “is a disease *sui generis*, which can assume the form of all diseases, and may present itself under the character of a FEVER; AN INFLAMMATION; AN ERUPTION; A FLUX; A RETENTION; OR A NERVOUS AFFECTION.”

## TREATMENT.

HAVING endeavoured to point out, in the preceding part of this work, not only the number but the variety of theories which have been broached, in order to explain the cause and nature of gout, it was to be expected, that as great a difference would exist in the plans of treatment that have been proposed for the cure of the disease. Such, unfortunately, has been the case ; while the fact that the cause of the disease was unknown, has added greatly to the list ; for the more obscure the nature of a disease, the greater, as has been long since remarked, is the number of remedies resorted to. “ No other disease confirms the truth of this observation more than that which engages our attention ; the number of remedies employed for gout is, in fact, immense—nearly the whole *materia medica* being comprised in the list. But, as we might well suppose, this apparent wealth hides the greatest poverty : and we will only give, as a proof, among twenty others, the opinion

generally entertained, among medical men and others, that gout is incurable."\*

So great, indeed, is the diversity of opinion which exists on the subject, that we may not only ask, as other writers have done, if gout be a local or a constitutional affection? but, also, if its inflammation should be encouraged, or counteracted? if it is to be treated with cordials or evacuants? with cold or with heat? with a phlogistic or an antiphlogistic regimen? No set of questions, as Dr. Good has rightly observed, can be more repugnant to each other than these are: and yet, there is not one of them but we may obtain an answer to, either in the negative or in the affirmative, by applying to different practitioners for the purpose.† The cause has been already explained, viz., the too great generalization from certain facts connected with the advancement of the medical science, in common with all others; for the treatment of the disease has necessarily varied with the theories that have been formed respecting its cause and nature. This is an error that, perhaps, was unavoidable, constituted as the human mind is, or, at all events, considering the state in which the practice of medicine has been, not only before but since the time of Lord Bacon, who so ably showed the fallacy of these idols of the theatre, as he quaintly termed them.

\* *Dict. de Méd., Pract. et de Chir.*, T. 3. † *Loc. cit.* Vol. 2, p. 620.

The consequence has been, that each successive æra not only witnessed a change in the treatment of the disease, but the employment of different and even opposite remedies. Thus, alkalies were freely administered, at one time, under the supposition that acidity prevailed ; but, as other practitioners inferred that the state of the blood was alkaline, acids were resorted to, and with, apparently, the same success as attended the former class of remedies. So, again, some patients have been treated by depletion and low diet, from an idea that the disease was of an acute, or inflammatory, character ; while cordials and a generous living have been recommended to others, from the notion that debility was the cause of gout : or, at the least, existed during the attacks. At another time—either in consequence of the want of success in the means resorted to, or, else, from an idea that the cause of the disease being unknown, no appropriate treatment could be adopted—the interference of art was considered useless, or injurious ; so that the disease was allowed to continue its progress almost unmolested, until it either subsided spontaneously or ended fatally. The common practice of committing the sufferer to *patience and flannel*, said Cullen, is established upon the best foundation—an axiom that was acted up to even in the time of Sydenham. “Gentlemen,” exclaimed M. Troussseau, in one of his clinical lectures, “ought

we to treat, or attempt to cure, the gout? I mean by this, ought we to interfere actively during the attack? Assuredly, this question would appear very singular, if not very impertinent, to the unfortunate gouty patient: it may also appear equally strange to a great many physicians, who cannot comprehend that hesitation is possible when we speak of the horrible sufferings of which I have attempted to give you a sketch. However great may be my desire to soothe the patients who call me to their aid, I nevertheless ask again, ought we to try to cure the gout? Ought we to treat acute gout, and attempt to suppress those articular manifestations so cruelly painful? Ought we to treat chronic gout? Ought we to treat larvaceous (masked) gout, anomalous gout, and retrocedent gout? Sydenham, whose authority in this matter is immense, on more than one account . . . . answers in the negative, at least as regards regular attacks of gout."\*

But, "as gout, after it has once shown itself, is never idle, and as one paroxysm, in the opinion of Sydenham, Cullen, and every other physician, hastens on another, renders its intervals shorter, and its duration longer, and progressively saps all the energies both of mind and body, and renders life itself a burden;"† it became a question, with some practitioners, whether any treatment, how-

\* *Loc. cit., Tom. 3, p. 354.*

† Good. *Study of Medicine.*

ever irrational and unscientific, could be compared to the injurious effects which resulted from allowing the disease to pursue its progress without molestation, and uncontrolled by the efforts of art. Consequently, of late years, men have run into the opposite extreme; instead of trusting to such simple means as daily experience pointed out, they have been ready to lay hold of any remedy, which seemed to have the least power in arresting the progress of the disease—regardless alike of its *modus operandi*, or of its ultimate effects on the system. This is more particularly true with respect to the preparations of colchicum, and the different quack medicines of the same class, resorted to alike by the antients and the moderns. The first to be mentioned is the hermodactylus, which is supposed by Sir Henry Halford and other writers, to be only a particular form of colchicum; the effects of this medicine appearing to be similar to the different preparations of this drug, if we are to judge from the accounts handed down to us by the Greek physicians. From these we learn, in addition, that although the administration of the remedy seldom failed to remove a paroxysm, it occasioned, at the same time, a more frequent return of the disease—a fact that has been particularly dwelt on by Alexander Trallianus. The veratrum, or white hellebore, and some other plants of the same species, were also resorted to by the antients, and

employed by them to some extent. The former has been recommended by a late writer—Mr. Moore—on the supposition that the *Eau medicinale* owed its properties to the same plant. This remedy, like the *hermodactylus*, has been found beneficial in subduing the local complaint, or the external inflammation, but it generally produces some unpleasant or dangerous effect—such as irritation, and a sense of heat in the stomach; vomiting, purging, pain, or griping in the bowels, and a sinking of the vital powers, followed, in some cases, by death.

The only other remedies of this class, which deserve consideration, are the *Eau medicinale*, *Wilson's Tincture*, *Reynold's Specific*, and the different preparations of *colchicum*; for although the exact composition of the former preparations be not known, they may yet be classed with the latter drug, their effects being the same. Whether the active principle of the above preparations be only *colchicum*, or whether there are other ingredients, as *veratrum*, or *hellebore*, matters not in a practical point of view: we are certain, by their effects, that they contain substances belonging, like *colchicum*, to the class of poisons termed *narcotico-acrid*—all of which possess similar properties. These are, in moderate doses, irritation of the stomach and bowels, followed, sometimes, by vomiting and purging; and, if their operation on the bowels be not too great, by an

increase in the urinary secretion and by diaphoresis. In larger doses, they produce a sinking of the pulse, rapid exhaustion of the vital powers, and death. Now these are the symptoms, and these the effects, that have been observed, in the majority of cases, after the administration of the different preparations of colchicum, as, also, of the secret preparations referred to above. Alluding to these preparations, Dr. Copland remarks: "Their effects are diminished energy and frequency of the pulse, languor, nausea and sickness, terminating either in vomiting or in alvine evacuations; but, if the dose be the least in excess, especially in some constitutions, syncope, extreme prostration, cold sweats, violent vomiting and purging, a small feeble pulse, and alarming sinking, or insensibility, are the results."\*

Such being the effects of the employment of this class of remedies, it is not surprising, that death should so frequently have followed the administration of colchicum, and the quack preparations belonging to the same class. Take, for instance, the following case, that of a patient who had been suffering for some time from rheumatic pains, and who took, by mistake, an ounce and a half of the vinous infusion of colchicum. No immediate effect was produced, but, about half an hour afterwards, he experienced sharp pains at the pit of the stomach, with nausea, followed by

\* *Dictionary of Practical Medicine.* Art., Gout.

violent vomiting and abundant alvine evacuations. These symptoms continued during the night, and a great part of the following day, when the evacuations ceased, although the nausea still continued. At this time, the pains of the stomach and intestines were excessively acute, and the patient, who was devoured by an intense thirst, appeared almost exhausted; the pulsations at the wrist ceased, and he became delirious: but death did not take place until the morning of the third day. On examination, no trace of inflammation could be discovered, either in the stomach or in the intestines; which shows that, although this poison acts as an irritant on the intestinal canal, the cause of death is to be referred to a *direct action on the nervous system*—the energy, or vitality, of which it would seem to destroy.\*

It was not necessary, however, to refer to the effect of the remedy in fatal cases to show its injurious properties; unfortunately, too many instances have occurred, even when administered in small doses, and by scientific persons, by which practitioners have been taught this sad truth. Hundreds of instances in proof of this assertion might be adduced, but one will suffice; it is that of a medical practitioner, attended by Dr. Copland, who took, contrary to the wish of the latter, a large dose of colchicum, and was, shortly afterwards, seized with violent pain in the

\* Orfila. *Traité des Poisons : ou, Toxicologie générale.*

stomach, a sense of sinking, and a languid, small, pulse — the gout having instantly disappeared from the foot. Large doses of camphor, with other diffusible stimuli, being resorted to, and mustard cataplasms applied to the feet, the disease returned to the extremities, and the affection of the stomach disappeared. It is to be lamented, that the science of medicine should have been in so low a state, as to render it necessary for medical practitioners to resort to such doubtful and dangerous remedies ; for although the different preparations of colchicum may certainly be taken in small doses with impunity, it unfortunately happens, that little or no benefit could accrue under such circumstances ; while, also, the idiosyncrasy of individuals is such, that what would be a moderate dose to some might prove a powerful one to others. We must, therefore, either give the remedy in doses that would be useless in an acute disease like the gout : or, else, run the risk of producing effects more to be dreaded than the disease itself. "In several persons, and three of these members of the profession," says Dr. Copland, "I have observed, that even twenty drops of the *mildest preparation* of colchicum could not be taken without most distressing internal irritation, and a sense of sinking, being produced." Referring, also, to the effect of the *acetum colchici* the above author remarks ; "although this is amongst the mildest of the pre-

parations of colchicum, especially when its acetic acid is neutralized by magnesia; yet I have seen it, in this dose (viz., 20 drops), productive of serious effects; and it is more likely to be injurious when it fails in acting upon the bowels: for, in this case, its influence is exerted chiefly upon the nervous system, and not upon the excreting functions,—the morbid sensibility being partially suppressed by it, but the source of disorder remaining untouched. The consequences are, either a frequent return of the fits, or a continuance of the internal affections in an aggravated form, or the supervention of some one of the irregular states of the disease.”\*

With such facts before us, it is useless to refer to the result obtained by this, or any other preparation of colchicum, in particular cases; for what Dr. Latham remarked, long since, with respect to the treatment of gout and rheumatism in general, applies with peculiar force to the administration of the above remedies. “It is,” observes this author, “no argument to say that, in one of them sometimes, and, in the other, often, we sail on prosperously, and reach the expected coast, since this is more the effect of chance than of any well concerted plan; and is owing rather to the nature of the vessel itself than to the regular management of the pilot, which, being well built, is blown over shoals by popular

\* Copland. *Op. cit.*

(favorable) gales, and is drawn, not conducted, into harbour."\* But admitting, as Dr. Good justly observes, "that colchicum has a specific power over a regular inflammatory paroxysm of gout, it is clear that it has no such power over the gouty diathesis, since the paroxysm has never been so removed as not to return again." On the contrary, colchicum occasions, as we have ample proof, more frequent returns of the disease; while the injurious properties of the remedy are not confined to its effect at the time of its administration; when continued for too long a period, or resorted to frequently, it gives rise to a variety of effects, which are more alarming, and more to be dreaded, than the disease it is intended to remove. As, however, my own opinion on this subject may be considered partial, I shall rest the proof of this assertion on the testimony of other writers—individuals whose authority, on this, and on every other, subject connected with the practice of medicine, cannot be questioned for a moment. "That this medicine," says the late Dr. James Johnson, "has often the power, or property, of checking at once the gouty paroxysm, or *external form* of the disease, I admit; but, that it lessens the *sum total of gouty action* in the system I deny most firmly."† In truth, the suppression of the external affection would only appear to fix the disease the more firmly in the system; and, by so

\* Latham; on Gout and Rheumatism.

† Loc. cit.

doing, to give rise to a variety of anomalous affections of a serious and dangerous character: "The consequences," says Dr. Copland—referring to the effects of the different preparations of colchicum, and those quack medicines which are supposed to contain it—"of having recourse to them, vary in different constitutions, and with the habits and modes of living of the patient; but they commonly are—a *much more frequent return* of the fit, or of the symptoms indicating its approach; impaired nervous power; debility of the digestive organs; torpor or irregularity of the biliary functions and of the bowels; headaches, and a variety of symptoms referrible to the encephalon. Besides these, I have met with instances of hypochondriasis, melancholy, mental delusions amounting to insanity, paralysis, and *angina pectoris*, evidently arising from this cause." I very recently, adds the writer, saw a case of partial insanity with Mr. Hunter, occasioned by the use of Wilson's tincture on the approach of the gouty paroxysm.

It is humiliating to think, that we should only have arrived, after sad and fatal experience, at a conclusion which was drawn by some of the first writers on the disease, among others, Alexander Trallianus. He observes that, in his day, many persons resorted to medicine in order to allay the violence of the pains, without adopting a proper or methodical treatment. For this purpose, the

hermodactylus was principally used; and although it seldom failed to remove a paroxysm, it occasioned, he adds, more frequent returns of the complaint. Notwithstanding these facts, colchicum continues to be employed and recommended by medical practitioners; while the different quack remedies, before referred to, are also taken, and perhaps, more freely, by the sufferers themselves.\*

"Until, however," as Dr. Barlow rightly observes, "the treatment of gout shall be established on the same principles which are found applicable to all other diseases; until the contemplation of its inscrutable, or, at least, undiscovered, essence shall be superseded by a fixed attention to its obvious and intelligible phenomena; and the proper treatment which these demand be adopted generally and systematically by the profession; quackery will continue to practise its deceptions, and gouty sufferers, hopeless of relief from the regular practitioner, to surrender themselves the willing dupes of every confident pretender." †

\* It was the adoption of these empirical modes of treatment that made the celebrated Professor Boerhaave exclaim, long since, "If we compare the good, which half a dozen true disciples of Esculapius have done since their art began, with the evil that the immense number of doctors have inflicted upon mankind, we must be satisfied that it would have been infinitely better, if medical men had never existed!"

† *Cyclopaedia of Practical Medicine.*

It becomes, therefore, a matter of great importance to ascertain, if there be any certain, or fixed, plan of treatment, that can be adopted, and which may be relied on, for the relief of gouty sufferers. This will not be a matter of much difficulty or doubt, if the theory now given, with respect to the cause and nature of gout, be a correct one. Having arrived at the conclusion, that gout is produced by the operation of a poison, the plan of treatment which, in this case, ought to be pursued, would appear to be that which is adopted, when other poisonous and well-known substances have been introduced into the system, either by accident or design. This consists in neutralizing the offending matter, or, when this cannot be accomplished, administering those remedies which may cause the expulsion of the poison out of the system.

The latter is the plan, which was usually adopted by the majority of the antient physicians, both Greek and Arabian; as will be evident by a reference to the detail that has been given on the subject in their works. Galen, the Roman Hippocrates, as he may be termed, and who wrote about the middle of the 2nd century of the Christian æra, says: The first indication in the cure of the disease, is to evacuate the offending matter by bleeding or purging; and then repellents and discutient applications are to be employed. Oribasius, Aëtius, and other writers,

recommend a nearly similar method. But it is to Alexander Trallianus, in the 6th century, that we are indebted for the best account of the ancient method of treating gout; and which, it may be observed, varied according to the type of the disease. In acute cases, with great heat in the part affected, unattended by swelling, he had recourse to purgatives, and cooling, anodyne, applications to the local affection, with a spare diet. In plethoric subjects, or when there appeared an unusual determination of blood to the affected part, he advised blood-letting. But in chronic cases, occasioned, as he inferred, by a phlegmatic humour, with the *absence of heat and redness* in the affected part, his plan was to order purgatives, combined with hellebore, cumin, thyme, etc.; and, after this, warm diluents. Instead of refrigerants, he recommended, *in this form of the complaint*, warm anodyne cataplasms to the external inflammation. Paulus Egineta adopted a similar practice to the former; while, also, he gives certain hints well worthy the attention of practitioners in the present day. Although he had recourse to depletion in early attacks, he states, that the loss of blood is injurious in subsequent ones, and after frequent seizures. He also adds, that the practice of purging with hermodactylus is improper; although removing the disease speedily, it is bad for the stomach, producing nausea, want of appetite, and other

disorders of the alimentary canal. "We hence learn, from the foregoing account," as Dr. Copland has remarked, "how little has been added to our knowledge of this subject by the numerous productions that have appeared since the revival of learning in Europe; and that, although there is much that is trifling, a little that is absurd, and something that is questionable, in the doctrines and treatment of gout adopted by the antients, there is also much deserving of commendation and adoption."

The same plan of treatment, or, at least, a treatment founded on the same views, was followed by the majority of practitioners for some ages,—by all those, in fact, who adopted the humoral pathology; a doctrine which had numerous advocates down to the time of Sydenham, the father of English medicine, as he has been justly styled. It is to be regretted, that the promulgation of other doctrines should have banished this scientific, and hitherto, only proper method from the practice of the moderns; as from the time that the treatment founded on these views came to be abandoned, practitioners, disappointed in the result of their practice, have either left the disease to pursue its ravages in the system unchecked; or, else, they have resorted, as we have seen, to empirical remedies, hopeless, like the patient, of obtaining relief by other means. Not that this method is the best, that could be adopted

for the treatment of gout, but that it is the only certain and safe one to be pursued in the absence of a specific remedy; and with the amount of knowledge which we had, up to the present time, as to the cause and nature of the disease. That it is not an infallible method, and that it failed, in numerous instances, to afford any relief, has been already stated, when considering the *modus operandi* of the different remedies usually resorted to in gout; while, also, it has been shown, that they are actually injurious when not administered with tact and judgment, or, according to the type or stage of the disease. Added to this, when the very remedies and means, which are adapted for the cure of the disease, have been administered at other periods, as during the convalescence, or in the intervals of the attacks, they have sometimes produced a fresh paroxysm. So great, indeed, has been the uncertainty, at particular times and in particular persons, of the above mode of treatment, that it made Sydenham exclaim; "it is both a fruitless and pernicious attempt to endeavour to cure the gout by evacuating medicines." Such being the case, we may reasonably apply, to the treatment of Gout, the remarks of Sydenham, who says: "though that seems to be the best method of curing diseases which, after nature, has pitched upon a certain kind of evacuation, assists her in promoting it, and so necessarily contributes to cure the distemper; it is, nevertheless, to be

wished, that the cure might be shortened by *specifics*, if any such medicines can be discovered; and, what is of more importance, that the patient might be preserved from the evils which are the consequence of those errors, that nature often unwillingly makes in expelling the cause, even though she is assisted in the most effectual and skilful manner by the physician." Of the justness of these remarks no doubt can possibly exist, and the want of such remedies has been universally felt and acknowledged by the majority of writers, from the first dawn of the science of medicine to the present day. Many and various specifics, it is true, have been recommended and proposed, at different times and in all ages; but there are none, that I am acquainted with, which will stand the test of experience, and that scrutiny into their properties and mode of operation, which is necessary, before we can pronounce them to be specifics for any disease. When thus examined it will be found, that the whole of the specifics, so styled, have no right to the title; for it can be shewn, that they act not on specific but on general principles. Thus bark cannot be a specific for ague, as it frequently fails to cure the disease; while, also, many other tonics, drawn from the mineral as well as the vegetable kingdom, act in the same way, and produce the same effect. This remedy, therefore, can only be beneficial because it raises the nervous energy of the system, and

thus enables the patient to resist the impression of the morbid agent productive of the disease. As a state of vigour is frequently sufficient to prevent the injurious action of many poisonous substances, so, on the other hand, the raising the depressed energy, or vitality, of the body, may be sufficient to remedy the effects resulting from their operation. Hence, we are obliged to refer the operation of bark in ague not to specific properties, but to general principles. The same remarks will apply to mercury and sarsaparilla, which have been considered as specifics in the cure of lues venerea; but, as Sydenham justly observes, they ought not to be deemed proper and direct specifics, unless it could be demonstrated, by undeniable examples, that mercury cured the patient *without causing a salivation*, and sarsaparilla, *without producing perspiration.*" Had Sydenham written nothing more than this, it would have entitled him to be ranked as a profound thinker and observant practitioner; for it shows, that he had right views of the nature of this disease, and of the *modus operandi* of the remedies usually employed for its relief. He must have inferred, that lues venerea is produced by the operation of a poison in the system; and that mercury is beneficial by promoting all the different secretions of the body, so as to favour the expulsion of the morbid matter—a conclusion

the justness of which is now generally allowed with respect to this particular malady,

Although this writer came to the conclusion, that no specifics, rightly so termed, were known in his time, with the exception of bark, which he considered to be one, but which is not the fact, he yet adds: "I doubt not, that out of the overflowing fulness wherewith nature, by the appointment of our most liberal Creator, abounds, for the preservation of the whole human race, provision is likewise made for the cure of the principal diseases which afflict them, and that by such medicines as are within the reach of all, and the produce of every climate."\* The question, therefore, now is, can we, in the present day, pursue any other and more direct, or scientific, plan of treatment for the cure of gout than those which have been hitherto employed; and which, as previously shown, are either uncertain in their effects, unsatisfactory in their results, or injurious in their operation? This I hope to be able to prove is the case, having successfully employed, in the treatment of this disease, a remedy which, if it has any action in the economy, can only act on *specific* principles. This agent is carbonic acid gas. Not being an evacuant—either an emetic or a purgative or a diapheretic—it cannot act by expelling the morbid matter out of the

\* *Preface to Works.*

system. Nor is it a tonic: if it has any effect, it is that of a slight sedative. It is impossible, therefore, to refer the action of this agent in the economy to any general principle: as such, it will either be useless, when administered in a disease like Gout, or, else, it must, if found to be curative, act *specifically*—i.e. as an antidote to the poison productive of the disease. There is no other way of accounting for the effect of the remedy; while this conclusion is strengthened by the fact, that the different forms of carbon possess the property of uniting with, neutralising, and rendering inert, the products of putrefaction: as, also, of arresting the process itself. It matters not, in a practical point of view, whether we allow, that the poison productive of gout be that usually known by the term malaria; or, whether it be some deleterious substance formed within the body, and retained there, instead of being expelled by one of the ordinary secretions or excretions—provided only that the agent employed be capable of uniting with it, and rendering it inert. Having, however, stated the reasons which induce me to adhere to the former theory in preference to the latter, it is unnecessary to dwell on this point at the present moment; we will pass on to a consideration of the effects which have been observed from the employment of this remedy in the disease under consideration.

The first and most obvious result, which has

attended the administration of carbonic acid gas, in gout, is that of shortening the paroxysm to a much greater extent than that of any other remedy, that I have seen administered, or of which I have heard mention. This has been an *invariable* result, as far as my own experience goes; of which one example will suffice. It was that of a poor Irishwoman, named Mary Murphy, then residing in Oxford-buildings, Oxford-street, who was attacked with the disease in 1832—shortly after the appearance of the epidemic cholera in this country. This individual, whom I attended during the absence from town of my friend, the late Dr. Bloxom, had been in the habit of going into the infirmary in Mount-street on previous occasions; but so severe were the attacks, generally lasting from three to four months, that the authorities refused to admit her, and she was obliged to apply to the district surgeon.

When I saw her, the inflammation, which, at first, attacked the joints of the great toe, had already spread to the ankles, the knees, the joints of the hands and elbows; and so great were her sufferings, that she immediately requested, on my visiting her, to have a dose of laudanum; adding, that this was the only motive she had in sending for medical aid, as she knew it was out of my power to effect any good, or do more than soothe the pain. Having, however, before this

administered carbonic acid in a few cases, and being convinced of its utility, I ordered this medicine, instead of the laudanum, much to the annoyance of my patient, who could hardly be persuaded to give it a trial, and then only in consequence of my telling her, that it was a better anodyne than laudanum, and that it would assuage the pain more effectually. This proved to be the case so soon, that, on my next visit, she begged as earnestly for the new anodyne as she had before done for the old; and as her request was in this case readily granted, she continued to take the medicine regularly until the termination of the attack, which was at the end of the *third week*—notwithstanding that she had supposed, from the number of joints affected, that this attack would have been the longest, and the most severe of any she had experienced.\*

The next result, and that which could only be ascertained after the lapse of a certain time, and in those in whom the same treatment was pursued at each subsequent attack, has been the gradual diminution of each successive paroxysm, and the lengthening of the interval between the attacks; so that, in the end, paroxysms, which before lasted

\* Some years after this I met Dr. Bloxham, who said he had just been to see my old gouty patient, from whom he had received a shower of abuse, because he would not give her the *new anodyne*. Her cry, each time that he saw her, was, Oh! the new anodyne, the new anodyne; which he was unable to order, being, at that time, as ignorant of its nature as the patient herself.

one, two, or three months, were reduced to as many weeks or days, while the intervals, which usually did not continue more than a few months, were lengthened to as many years.

This was the case with a near relative of my own, who had been more particularly under my care than others; as the majority of the first patients, to whom carbonic acid was administered, being pauper ones, it was seldom that I had an opportunity of seeing them again, or of administering the same remedy in subsequent attacks. In addition to this, my absence from England, for some years, prevented my following up these inquiries, in other instances, to the same extent as in the above case, which was under my observation for many years, while the same mode of treatment had been adopted during the whole of this time. Previously to the commencement of this plan of treatment, the attacks generally lasted from six weeks to three months, and returned annually; sometimes once, sometimes twice, in the year; but, from the commencement of the treatment now referred to, the attacks diminished regularly in duration, while the intervals between them as regularly increased—the interval between the two last attacks having been four years. For several years before her death—7 or 8—this patient had no attack, although the first was soon after the birth of her 1st child—the 1st of eleven. Her mother, also, was a martyr to gout,

having had chalk stones in all the joints of her hands and feet, for many years before her death. In all the cases which I have attended, the same result has been obtained; viz., a diminution in the intensity, duration, and frequency of the attack, —the degree depending entirely on the time during which the above mode of treatment was adopted; as it is of course necessary, that the patient should take the same remedy at each subsequent attack, in order to ensure the same ultimate benefit.

This is precisely the result we should have expected, *a priori*, from a consideration of the *modus operandi* of the remedy, and of the situation of the poison in the body. When carbonic acid gas is taken into the stomach, it is absorbed by the veins, and is carried forward, with the circulating fluid, into the portal and great venous centres, until it ultimately reaches the lungs, whence it escapes, with the expired air, carrying with it those morbid substances that it has an affinity for, and which it may encounter in its course. Now it is precisely in this situation, according to the inferences before drawn, that the accumulation of the poison of gout takes place; while it is to its presence there that the symptoms observed in the preliminary stage are to be referred. When, however, the febrile stage has set in, and when the external inflammation has appeared, the greater portion of the morbid matter, it was further inferred, has been propelled into the arterial system.

It follows, therefore, that if the administration of the remedy has been delayed, until the febrile stage and the external inflammation have been fully developed—and this has usually been the case on my first attendance on gouty patients—the same amount of benefit cannot be derived, as when the remedy has been resorted to at an earlier period. But, as soon as the patient becomes convinced of this fact, which he usually does after one or two attacks, he is induced to resort to medical aid immediately ; or, when the first symptoms, or the first prognostications, of an attack appear. Hence, we understand why the duration of the subsequent attacks should become gradually less and less, until they disappear altogether. Another reason may also be assigned for the greater benefit derived during subsequent attacks. By the ordinary methods of treatment—and more particularly the empirical method by *colchicum*, etc.—the disease is suppressed, *not* cured. Hence the frequency of the attacks, and their gradually increasing duration. But, when an antidote is employed, in a proper manner, and to a sufficient extent, the whole of the morbid matter, we may presume, will be removed from the system. In the next attack, therefore, only such a portion of the poison as has then been imbibed into the system, will have to be neutralised ; and if this be effected immediately, the course of the disease may be at once arrested. We can also account,

in the same way, for the long intervals between the attacks, when this mode of treatment has been adopted. The cause being external not internal, and the disease, at the previous attack, having been entirely eradicated, the patient would necessarily remain exempt, until brought again within the sphere of the remote, or operating, cause.

Although the preceding has been the result in the majority of cases, it has sometimes happened, that the course of the disease has been at once arrested on the first occasion of administering the remedy; that is to say, the attack, instead of lasting three or four weeks, has been reduced to as many days: a reference to the cases hereafter given will prove this. Such has been the result in ordinary, simple, and uncomplicated attacks of gout.

In cases of *anomalous* gout, also, in which the symptoms denote derangement in the abdominal organs, or in those functions which are under the direct control of the ganglionic system of nerves—a derangement produced, as before concluded, by the presence of the poison in the abdominal veins, or those of the portal system—a greater relief has been obtained, as we should, *à priori*, have expected, than in common and ordinary attacks; for not only has the administration of this remedy been sufficient to remove the above symptoms, but it has also prevented the super-vention of the external inflammation, when resorted to before the appearance of the latter.

In cases of retrocedent gout, the amount of benefit to be derived from the remedy will depend on the organ, or part of the body, affected ; as the same result, from what has been stated, could hardly be expected to follow the administration of carbonic acid when the poisonous matter is transferred to the head, for instance, as when it is contained in the abdominal organs or veins—in that track, in fact, which the remedy takes from its introduction into the stomach to its exit from the lungs. Whether the poison is actually transferred, in every case, to the organ which is chiefly affected, will admit of some doubt, especially when the symptoms present denote derangement in the circulation ; for the partial arrest of the flow of blood in one organ, or part of the body, may cause a sudden and increased determination of the same fluid to another organ, or part, so as to produce symptoms which shall alone excite the attention of the patient or of the practitioner. Thus, the failure of the nervous energy of the stomach, from indigestion or other circumstances, will often cause a rush of blood to the head, and give rise to symptoms which simulate an attack of apoplexy. But the administration of a stomachic, in these cases, will generally remove the symptoms as speedily as they arose ; thus showing, that the increased flow of blood to the head was produced indirectly, and not directly—or, in other words, by a cause residing in the stomach.

In similar instances, therefore, in gouty subjects, and when, as we may infer, the affection of the head is sympathetic, great and immediate benefit will be derived from the administration of carbonic acid gas, especially if combined with some stomachic; but in those cases in which symptoms of inflammation in the head, the heart, the pleuræ, etc., with increased action and fulness of the whole of the sanguineous system, are present, the result will necessarily be different. Independently of the danger which always attends the transference of the inflammation to an internal and vital organ—a result that is frequently followed by death, before there is time for the employment of adequate remedies—the same time would necessarily be required for the removal of the internal inflammation, when it becomes fixed, as the external. Fortunately, there is a greater tendency, in such cases, to a re-propulsion of the morbid matter to the external surface than in primary attacks;—a great advantage, the external inflammation being not only less dangerous, but, also, more amenable to treatment.

It so happens, however, that, the symptoms in the majority of cases of retrocession, denote disturbance in the abdominal and thoracic organs alone, produced, as has been before inferred, by a transference of the morbid matter to the abdominal, or portal, veins, and the great venous

centres. In such instances, therefore, the same benefit will follow the administration of the remedy as in the preliminary stage of the disease—for the symptoms present are similar, only more intense, and the situation of the poison, as we may conclude, the same. That this opinion is a correct one, may be presumed from the fact that, in the few cases of retrocession which presented the above symptoms, and in which carbonic acid was administered, not only were the more urgent symptoms immediately relieved, but the external inflammation, when it re-appeared, was very much slighter than before. Now it is only on the supposition, that the morbid matter had been removed from the exterior to the interior—to a part, in fact, where it can be more easily neutralized than in its former situation—that will enable us to account for this interesting fact.

As regards the employment of adjuvants—or those remedies that tend to expel the poison out of the system—it is not necessary to say anything, their *modus operandi* having been already considered. Their employment must, of course, be left to the discretion and judgment of the medical attendant; more especially as it would be impossible to give general directions for the treatment of cases, that present a variety of symptoms in almost every patient. Besides, it is only in the complicated cases, that this class of remedies will

be required: in recent and simple cases, the administration of the antidote alone will be sufficient. It may be as well to add, that I have always refrained from administering a purgative during the attack, unless the bowels were confined, in which case only a mild one was employed—merely sufficient to empty the bowels without producing catharsis. If this state continues, an alterative—such as pil. hydrarg—may then be resorted to. As soon, however, as the attack has subsided, and it is evident, that the whole, or the greater portion, of the morbid matter has been neutralized or expelled from the system, it is advisable to administer a purgative—a warm stimulating one, that will act on the liver and portal veins, and purge the blood rather than the bowels.

A few words will be sufficient respecting the local applications, which have varied from cold lotions or cold water to leeches, sinapisms, blisters and—the moxa. According to the theory now given, warm applications are the only proper ones in acute attacks; or as long as the inflammation and pain continue. Afterwards, embrocations may be employed to dissipate the swelling, if any remain.

With respect to those effects—the *sequela* of gout—which are so frequently observed in old and protracted cases, such as asthma, affections of the heart, etc., they will, of course, have to be

treated on general principles, and by ordinary remedies. It is, however, of great importance to prevent an increase of these affections by the subsequent introduction of the primary morbid agent into the system. Whenever, therefore, there is reason to believe, either from an increase in the ordinary affection, or by the supervention of other and more specific symptoms, that this cause is in operation, not only should the antidote be had recourse to, but those means, which tend to remove extraneous matter out of the system, should also be employed.

As, also, debility, there can be no doubt, acts as a predisposing cause of gout, and as this debility is generally accompanied by derangement of the digestive organs, it will be desirable to correct these states whenever they exist, by an appropriate treatment; avoiding the pure bitters, the continued use of which is apt, in gouty subjects, to retard, rather than to promote, digestion—particularly if long continued—and to favour, rather than to prevent, a return of the disease.

When, from the symptoms present, there is reason to believe, that the whole of the morbid matter has not been either neutralized or expelled, it will be advisable to continue the administration of the antidote, after the subsidence of the paroxysm, but less frequently, until these effects have been removed. In other cases, and more particularly in recent and acute attacks, when

the convalescence is usually perfect, this will be unnecessary. It would, in fact, be useless, for as the poison is generated without, not within, the body; and as it is only introduced at particular times, or at particular seasons of the year, to attempt to neutralize, or destroy, an agent that has no existence, could only be a waste of time and of medicine. It is better to wait until evidence exists of its presence in the system, when, if resorted to in time, we shall be enabled to neutralize the whole, or the greater part, of the morbid matter; and if this course be adopted at each return of the disease, the subsequent attacks will be slighter and slighter, and the intervals longer and longer; while, in the majority of cases, if no serious complications existed previously, the attacks will either be reduced to a minimum, or the disease be entirely eradicated,—thus removing what has hitherto been considered an *opprobrium medicinae*.

"ADMINISTRATION OF THE REMEDY."—As will be evident, from what has gone before, and by a reference to the theory now given, the best time for the administration of the gas is at the commencement of the attack: as soon as any indication is perceived of the approach of the enemy. The sooner that the remedy is resorted to the greater will be the benefit; it being at this period, as we have a right to infer, that the poison is contained in the venous and portal systems—there where the antidote has the greatest chance of being brought into contact with the morbid matter. Hence, the great benefit that is derived from the employment of the remedy at the very commencement of the attack. When, however, the external inflammation is fully developed, and when the febrile stage has fairly set in, the same amount of benefit cannot be expected, and is never obtained. Still, as we have proof, from the result of the administration of the remedy in this disease, that the whole of the morbid matter is not carried on to the external capillaries, the antidotal treatment is no less necessary in this case than in the former. By the employment of the gas, at this stage, we shall be enabled to arrest the progress of the disease, cut short the paroxysm, and convert a severe into a mild attack. This will be evident by a reference

to the case previously narrated. More than this, we may also infer, that the whole of the morbid matter is not retained in the capillaries of the affected part until the termination of the attack. A portion will doubtless be carried on, with the current of blood, into the veins, and may thus come in contact with the antidote, during its course from the stomach to the lungs. This conclusion is strengthened by the fact, that there is always a remission in gout, both of the inflammation and of the fever, the same as we observe in ordinary attacks of remittent, and, particularly, of intermittent fever. If, therefore, the inflammation and the fever in gout be due to the presence of a morbid agent in the capillaries of the skin, we must also ascribe the remission to its expulsion, wholly or in part, from the capillaries of the skin, and its propulsion into the venous radicles. It is in this way, and only in this way, that we shall be enabled to account for the great and speedy relief, sometimes obtained, by the employment of a remedy taken into the stomach ; and which, as we have reason to believe, does not enter the arterial system, excepting in minute quantities.

As regards the mode of administering the remedy in the above cases, a dose of carbonic acid gas, either in the form of soda or Seltzer water, or as an effervescent draught, should be administered every hour, until 4 or 5 doses have been

taken. They may then be discontinued for some hours, and be continued subsequently every 2, 3, or 4 hours, according to the urgency of the symptoms. If the external inflammation be slight, as, also, the fever, the draughts should be repeated every 3 or 4 hours, until the local and general symptoms have entirely subsided. If, however, the external inflammation is severe, and the fever runs high, when the treatment is commenced, the medicine ought to be given every half-hour, until 5 or 6 doses have been taken. Instead, however, of continuing the remedy, as in the former instance, it will be better to wait until the remission occurs; and then to administer the medicine every hour, until 4 or 5 doses have been taken, or until febrile re-action commences. This plan should be continued until the termination of the fit. In anomalous gout, when the symptoms denote derangement in the chylo-poietic organs more particularly, a dose of the remedy should be taken every two or three hours, and be continued until the morbid effects have been removed.

In cases of retrocession, more especially when the symptoms denote depression of all the vital functions, the antidote should be immediately resorted to; and be repeated every half-hour or every hour, according to the intensity of the symptoms, until some relief has been obtained, and the more urgent symptoms have subsided. The remedy should be employed, in the same

manner, in cases in which the morbid matter has been transferred to the heart or the brain; and when the symptoms denote, not depression but excitement, and increased action of the circulation,—for the following reasons. In the first place, these symptoms are sometimes, as previously explained, sympathetic, and produced by indirect not direct causes. In the next, the whole of the poison, as in the case of the external inflammation, is never propelled to a particular part, or organ, of the body. A large, if not the greater portion of the morbid matter will be diffused in the blood, and particularly in the great venous system. Although the same speedy benefit cannot be derived from the administration of the antidote in these cases, as in the former; the same result ought to be obtained as when the inflammation attacks the external surface of the body or some joint,—provided only that time be given for this purpose, and death be not the immediate result of the transference of the poison to a vital organ. But we must not rest satisfied, in such cases, with the administration of the antidote; means should be adopted to restore the balance of the circulation, and propel the offending matter from the interior to the exterior, by the remedies and the agents usually resorted to on such occasions. These means will be rendered more efficacious by the previous administration of an antidote, inasmuch as the cause being removed,

either wholly or in part, the effects will necessarily subside more easily and quickly than would otherwise have been the case.

NOTE.

The carbonic acid gas can be given when dissolved in water, as in the form of soda or seltzer water, but *not* the natural seltzer or Vichy waters, which cannot be depended on, as they contain, in general, only a small quantity of carbonic acid gas, when bottled. It can also be employed, when extricated from its combination with soda by means of citric or tartaric acid—commonly called a saline effervescing draught. I prefer, in general, the latter form as more manageable and certain, for unless the attendant be very expert, a great part of the gas generally escapes from the soda water before it is taken. Added to this, the quantity is too great for one draught; while the remainder, if kept, would be nearly useless, as water, except under pressure, retains only a small quantity of carbonic acid gas. When used, however, a tea-spoonful of syrup of ginger, or half a tea-spoonful of tincture of ginger, should be added to the draught to counteract the impression of cold on the stomach,—produced by the condensation of the gas, and its absorption of caloric on assuming the gaseous form again. Some syrup—any simple syrup will do—should also be added to the saline draughts, not for the same reason, but in order to prevent the too speedy escape of the gas. If the soda be ordered in powders—which is the best form, not being very soluble in water—and the acid in solution, the syrup can be added to the latter. One word more. The patient should be cautioned not to allow any of the gas to escape, but to take the draught immediately the two solutions are mixed—the soda being placed in a tumbler, dissolved in a wine glass-full of water, and the acid solution poured on to it.

HISTORIES: Having had the misfortune to lose the histories of all my cases, not only in this disease, but in all others, together with my Books, MSS., and other valuables, in the disastrous fire at the Pantechnicon, a few years since, I am unable to give that evidence which is desirable, if not necessary, when a new remedy has been employed. The particulars of two cases, which were among my private papers, escaped the flames: and these I now add.

King's Road, Chelsea,  
July 21st, 1842.

Dear Sir,

Mr. James Roberts, aged 60, of florid complexion, and full habit of body, sent for me on the 9th of June last. I found him on the bed, complaining of intense pain in the great toe joint, which was extremely swollen. He had been suffering two days previously to my visit, and there was a good deal of fever and derangement of stomach. Mr. R. gave me to understand that he had suffered, in a similar manner, 3 or 4 times. I commenced with clearing out the bowels, and then began with the Mixture of Potash and Citric Acid, which I ordered every hour. He continued with this medicine (only) for 4 days, when he got perfectly well, and assured me he was able to walk without any pain. On former occasions, he had been confined to his home for *three weeks*. So much relief did the

Carbonic acid afford him that, after taking a few doses, he states he felt relieved of pain.

I remain, dear Sir,

Yours very truly,

A. CRIDLAND, M.R.C.S.

John Parkin, Esq.

The following letter is from an English Merchant, settled in Barcelona, but who, like many other Englishmen abroad, was almost "a Doctor."

Barcelona, 20th Feb., 1843.

My dear Dr. Parkin,

After a few remarks on other matters, the writer proceeds thus: "Much as you will be, no doubt, gratified at receiving the information, I am sure your satisfaction will not surpass that which I feel in being the bearer of it. You must know then, that your remedy appears to have effected a radical cure\* in the patient, who has been under my charge since last June or July. It is such a striking case of the success of your treatment, that it really deserves to be added to the Work; and I regret very much that I am so little qualified to draw up a Report for that object. I think, however, I could get something like a deposition from the patient, attested by respectable witnesses, if such a document could

\* This is an erroneous conclusion, as the patient would be still liable to returns of the disease, although, possibly, they might be cut short by early treatment.

be of any service in making known the wonderful effects of the carbonic acid gas. The person in question (by trade a fishmonger) is about 40 or 42 years of age; and has suffered very seriously for about 15 years, with 3 or 4 attacks every year of the *most severe* kind, the disease generally commencing in the hands and feet, and extending to the elbows, shoulders, nape of the neck, and knees. He describes the agonies he used to suffer as so great, that he has frequently called on those about him to put an end to his existence. His fingers are distorted and crooked: and, in short, although it may be an improper remark on so serious a subject, he went by the nick name of —— Commander of the Gouty Legion. This is the subject that, at the present moment, considers himself entirely rid of the disease, enjoying the best of health, and who, out of gratitude, would fall down upon his knees and adore Mr. Parkin, if he were present.

“When I first administered the draughts to him, he was under the commencement of an attack in the right hand, brought on by passion the preceding day. The disease spread to the elbow, but went no further. He complained, however, of the pain that time being even greater, if possible, than he had ever suffered before, and being an ignorant man, he had got it into his head, that it was owing to the disease not being able to spread as usual, by which all its malignity

was concentrated in one spot. I tried to convince him, however, of the contrary; and that it only proved to be the precursor of a very serious attack. I made him take the draughts every three hours, supplying him out of my own stock of French manufactured soda, not trusting to the Spanish, which, you know, is inferior. In three days, he came round again, and then took three draughts every day for some time. About three months after this, he had all the symptoms of another attack; but, full of belief in the efficacy of the remedy, he passed the first or better part of the night in taking a draught every two hours, or even more frequently, till, at last, sleep overcame him; and when he awoke, late in the morning, every symptom had disappeared, and he found himself as though he had only been dreaming, and quite well. From that time down to the present day (three months) he has had no signs whatever of the distemper.

"I remain, etc.,

"JOHN MONTAGUE."<sup>\*</sup>

One of the most interesting of the lost histories, having been written by the patient, was that of

\* This gentleman died 5 or 6 years after this, but as I heard nothing more of the patient, he had, I presume, no serious attack subsequently. That he had others may be concluded, but as they were, in all probability, cut short, like the preceding, they would not be thought worthy of note, particularly as Mr. Montague knew that such was my expectation.

the late Mr. Pittman, Editor of the *Surrey County Chronicle*. After having been a martyr to the Gout for 20 or 30 years, the attacks gradually decreased in intensity and duration, while the intervals became as gradually lengthened, until, at last, they ceased altogether. At least, Mr. Pittman had experienced no attack for some years, when I last heard from him. Previously, he had been unable to walk the shortest distance, from the swollen state of his feet, the attacks having been so frequent; latterly, he had walked every day to his office, some miles, without any inconvenience.

Although the attacks were neither so severe nor so frequent, the treatment was no less successful with the late Mr. Hoys, Secretary to the University Club, Pall Mall—he, also, having escaped an attack for some years before his death, although not for so long a period as Mr. Pittman. He died, in fact, from an attack of Bronchitis, complicated with disease of the heart; an affection under which he laboured previously to my attendance on him.

A precisely similar result occurred with the late Sir Richard Dobson—under whom I had the good fortune to receive the first part of my medical education—excepting that the tendency to return did not cease for any lengthened period before his death. Instead of being acute attacks however, lasting 7 or 8 weeks, and so severe that a pillow

greeted the head of any one that walked heavily across the room, they dwindled down to a few days' or a week's duration, and were attended with little or no pain. They were, in fact, attacks of what is sometimes termed "dumb gout," characterised by swelling in the joints, rather than inflammation; the effect of want of circulation in the extremities, caused, in this instance, as well as in so many other, old, gouty, neglected cases, by an affection of the heart, of which Sir Richard died.

Such are the results that have followed the employment of carbonic acid gas. How different these are to those formerly witnessed, with patients treated by other methods, the following recital will too painfully demonstrate. In a letter which I received, shortly after the publication of my Work, in 1841, and dated Busby Hall, Stokesley, the writer thus expresses himself. "Take the following as a description of myself. A Clergyman, 60 years of age, married and had six children; lived an active country life, and most temperate in all things, so that there is no suspicion of gout having been brought on by excessess of any kind whatever. In 1811, my first Fit came on in my feet, and how many hundred more since have been my lot, I cannot say. If I live until the 30th August, I shall have been *five years in my bed*. The enemy at me in every possible part that can be named, but the out-

works most especially : the citadel, in the centre, still holds out, and *mens sana*, in its first state of perfection, vouchsafed by a merciful God to me at my birth. This wonderful mercy and blessing, however, enables me calmly to contemplate *the gradual destruction* that this dire bodily disease has been making, week by week, on what was no ornamental, although temporary, Casket for so imperishable a jewel as the soul of man. It has always appeared to me, that it is a most curious feature in gout, that so torturing and so persevering a Tyrant (as it may be called) should be so long in killing his victim. I have beat him down hundreds of times by my own strength, but he will conquer me at last, even by my own exertions in those numerous victories. I have nothing to thank the Profession for thus far, I am very reluctant to declare ; but truth, as far as I can assert it, must be told. In 1817, I consulted Sir Charles Scudamore, and, again, about 1820, but I soon found that he had not, as I really believe he thought he had, " hit the right nail on the head." . . . Since colchicum came into use, all the system of relief, that a gouty subject seems to have any prospect of being treated with by general Practitioners, and by those of acknowledged merit and standing, too, is that of being first *knocked down* by Colchicum, and then damages attempted to be immediately after repaired by various Tonics, ringing the changes on Quinine, Cascarilla, Co-

lumbo, etc., as circumstances dictate. The whole of this mode of proceeding arises from the professional impression, that "Gout is incurable;" and that all that can be done is to relieve present pain, and take the chance of consequences. I have told my respected, and (I believe in most things but gouty lore) talented Medical Friend, who has been hammering at me these 15 years, and almost making two holes where only one was before in my crazy frame, that he felt, when gout was before him, it was no use his contending. The right weapon will sooner or later be discovered, I firmly believe, for God's mercy is infinite, and although so many centuries have been passed without discovery, He will, in His own good time, permit man to relieve men from this scourge." To which we must all devoutly say—Amen.

That the preceding wish or expectation is likely to be realized, if it has not been already, I may observe *en passant*, that the old gouty cripples, so common formerly, are not met with in the present day: either, therefore, there must have been a change in the type of the disease, or, else, an improved mode of treatment has been adopted. That my mode of treatment was largely adopted, I have evidence to show: while some Practitioners, who subsequently acquired a reputation for the treatment of Gout, employed no other remedy. No evidence, it is true, has

been adduced by others in proof of these allegations ; but that is not surprising. Medical men seldom come forward to support another's bantling : they only look after their own : while, if the one happens to be in the way of the other, they quietly give it a knock on the head, or put a cloth over its mouth and suffocate it—the world believing that it has died a natural death. A great many innocents have been sacrificed in this way. Calling on Sir Richard Dobson, who was then residing in London, and whom I had not seen for some time, having previously given up my practice and retired into the country, I was told by Lady Dobson that he was up-stairs, suffering from a slight attack of Gout, which I found subsequently to be the case. Her ladyship added : his friend Dr. Gordon, who enjoys a great reputation for the treatment of Gout, has just called, and left this prescription for Sir Richard. On looking at it, I found it to be a prescription for saline effervescing draughts—*ni plus ni moins*.

Curiously enough, my remedy is also employed by Dr. Garrod, whose theory has been already considered, and whose work on gout was published subsequently to my own. Why such an agent should be resorted to by this writer, it is somewhat difficult to say ; as, if not opposed to his theory, it is not, at all events, in accordance with it. Dr. Garrod infers, that there is an excess of uric acid in the blood : and he therefore re-

commends an alkali—lithia—in order to neutralize it. That would be very feasible and consistent treatment, provided only that the theory be a true one: but that, from the arguments previously used, cannot be the case. The uric acid is never found in the blood in a free, but only in a neutral, state—in the form of urate of soda. Referring to the employment, in this disease, of the Vichy waters, which contain a certain amount of carbonate of soda, Dr. Troussseau remarks: "The waters of Vichy, the same as those of Vals, of Carlsbad and of Pouges, that are indicated in certain, limited cases, do *not* act by neutralizing, in consequence of their alkaline principles, the *uric acid*, which, according to the chemists, is the cause of the morbid effects, since—and it is Dr. Garrod himself who says so,—it is precisely under the form of urate that uric acid is found in gouty subjects."\* Dr. Garrod states, it is true, that "the inflammation which occurs in the gouty paroxysm, tends to the destruction of the urate of soda in the blood of the inflamed part, and, consequently, of the system." (p. 318). This, however, is pure hypothesis, unsupported by any evidence, and in direct opposition to all the facts with which we are acquainted. Neither Dr. Garrod nor anyone else has ever discovered uric acid in a free state in the blood; it is always combined with an alkali. How, in fact, did Dr.

\* Loc. cit. vol. 3, p. 360.

Garrod obtain the uric acid in the analyses that he made of the blood? By adding a strong acid to the fluid, which, combining with the soda, liberated the acid. Even in old gouty subjects, when chalk stones, as they are termed, are formed in the joints, and when we might infer, that changes have taken place in the composition of the blood, if they ever occur, the uric acid is only found in combination with an alkali. Dr. Copland states, that "chalk stones are composed of lithic acid, combined with soda, potash or ammonia, but mostly with soda, and a little animal matter." According to the analysis of various chemists, quoted by Dr. Garrod, the proportion of these salts is as follows, in 100 parts:—

Urate of soda . . . .	34·20 to 52·12
„ of lime . . . .	1·25 to 2·12
Chloride of sodium . .	9·84 to 14·12
Phosphate of lime . .	4·32

the remainder being made up of animal matter and water. Such being the case, what occasion, we may ask, can there be for the employment of another alkali, although Dr. Garrod tells us, that the urate of lithia is the most soluble of all the urates? That may be, but, if the uric acid be in a state of solubility already; and if it be, also, in a neutral state, what more can be required? To administer another remedy, in order to effect that which has been already effected, is not only superfluous but it is ridiculous. Nor is there any

other acid in the blood, for this fluid is always alkaline. Listen to what Dr. Garrod says on the subject : "The serum, in which the urate of soda is dissolved, is alkaline: and this re-action is caused, in part, by alkaline bicarbonates. In no case of disease, and my opportunities have been very numerous, have I found this fluid acid; and it is probable that such a state would be *incompatible with life.*" (p. 349). Still, Dr. Garrod is not satisfied, and tries to render the blood still more alkaline; for what purpose it would be difficult to say, unless it be to increase the deposition of urate of soda in the joints, which, according to this writer, occurs even in recent cases—another proof that the uric acid is never found in a free state in the blood. To show how little faith Dr. Garrod has in his own remedy, he remarks : "I wish it particularly to be understood, that I do not consider lithia will, in any way, replace (*horribile dictu*) *colchicum*, as a remedy for gouty inflammation: it may prove a valuable adjunct; but its chief use is in chronic gouty cases, to ward off attacks, and remove the remnants of the disease." (p. 427). If, however, gout be produced, as Dr. Garrod infers, by an excess of uric acid in the blood; and if, as is further inferred, there be a less alkaline and abnormal condition of the blood in this disease, the administration of lithia or some other alkali would be indicated in every form, and in every stage of gout, and more particularly in acute attacks.

But the most singular circumstance is the mode in which the lithia is employed. "In administering the carbonate, or any other salt, of lithia, I have been guided," says Dr. Garrod, "by the following considerations. They should be given freely diluted, either in the form of powder, dissolved in a large quantity of water, or, which is preferable, dissolved in *aerated water*, so as to form lithia water, corresponding, except in strength, with the soda or potash water in general use." (p. 440). But this is not lithia water: it is a solution of carbonic acid gas, in which a small quantity of lithia has been dissolved. It thus appears, that Dr. Garrod not only employs another agent in combination with lithia, but that, while recommending an alkali, he gives an acid: or, at least, a remedy that does not possess any alkaline property. In addition to this, the lithia, by combining with a certain portion of the gas, will be converted into a bicarbonate; so that, instead of an alkali, a neutral salt will be administered. Now this may be logic, but, if it be, it is the logic of children, who sometimes amuse themselves by playing at the rule of contrary. More than this, while administering, in minute doses, a remedy which, he states, neutralises the uric acid, *already neutralised*, Dr. Garrod also employs, in large quantities, an agent proclaimed by me, only a few years before, to be an antidote and a specific in gout. We must leave it to Dr. Garrod

to explain such extraordinary anomalies ; as, also, why he has made no allusion either to my work or to my remedy, although he refers, frequently, to the work of Sir Charles Scudamore, published previously to my own. Dr. Garrod could hardly, we may presume, have been ignorant of the existence of such a work, not only because a diligent searcher after facts would have found references to it, in the periodicals of the day ; but, also, because it is on the shelves of the Med. Chir. Soc., of which he is a member—the Council having written to me for a copy, at the time of its publication. It is, also, in the Transactions of this Society, that some of Dr. Garrod's first contributions on the subject were published in 1848. But I have done with Dr. Garrod, his inconsistencies, his theory, and his treatment ; or, rather, my treatment tacked on to his theory—an unnatural alliance, and one that can never last.

## “REGULATION OF THE DIET.”

THIS subject, important at all times, is particularly so during attacks of gout, as it may be made, if properly understood, a therapeutical agent; and thus aid the other, and more direct, means adopted for the cure of the disease. As the different forms of carbon,—or, at least, the carbon contained in food,—when taken into the stomach, become component parts of the blood, and are subsequently converted into carbonic acid gas, by their union with oxygen; it follows, if this agent be a specific in gout, that those articles of diet should be selected, which contain carbon in excess,\* as

\* It was formerly supposed that the oxygen united with the carbon in the lungs, but it has now been satisfactorily shown by the experiments of M. Bernard, and other Physiologists, that this union takes place in the capillaries of the whole body, or, at the extremities of the whole arterial system. A small portion of the gas, thus formed, escapes by the skin; but the remainder passes into the venous radicles, and is carried on, with the circulating current, to the lungs, whence it escapes with the expired air. Its place is supplied by the oxygen, which is taken into the lungs, and absorbed by the blood, during the next act of inspiration, to undergo the same transformation in its turn.

the various farinaceous substances. These articles, however, admit of division into two classes—those which contain nitrogen, and those which do not, or only in small quantity. In the former class may be placed oatmeal, barley meal, flour, and potatoes; in the latter, arrowroot, tapioca, and rice, which although the staple article of food in the East, requires to be eaten in very large quantities, or, else, to be supplemented by other articles—by meat or fish, as in China, or, as in India, by beans, which, of all the cereals, contain the largest proportion of nitrogen.

In acute attacks, the non-nitrogenous substances should be alone taken; and until the fever and inflammation have subsided. To these may be added milk, being non-stimulating and nutritious, and containing, within itself, all the elements necessary for the support of the body—the carbon and nitrogen being in the due and proper proportion. Another addition is ripe fruit, and particularly grapes—a valuable remedial agent in certain chronic affections, as those persons who have gone through the “grape cure” in Germany or Switzerland can testify.

The same plan should be adopted with the other forms of gout, excepting that, in mild attacks, the nitrogenous farinaceous substances may be employed at first, instead of the non-nitrogenous. In those anomalous attacks of masked gout, attended with more or less debility,

more nourishing articles — as meat — may be added to the farinaceous ones. The symptom of debility is, however, very deceptive, being more apparent than real, and dependent on the temporary action of the poison on the nervous system, rather than to any actual loss of vital power. The neutralisation or expulsion of the morbid matter will generally prove to be more efficacious in the removal of the debility than the employment of stimulants or of a more stimulating diet. Besides, oatmeal and barley contain all the ingredients necessary for the nourishment of the body, as shown by the fact that strong, labouring, men will live on porridge without any addition, excepting, perhaps, milk. But as the stomach of certain delicate persons frequently rebels against such a diet, more particularly if long continued, a mixed diet may be resorted to in such cases, but with this exception. The non-nitrogenous farinaceous substances should be alone resorted to, when meat is taken, more than sufficient nitrogen, for the nourishment of the body, being contained in this single article of diet.

Such persons as are liable to repeated attacks of gout, or who suffer, almost constantly, from a state of chronic gout, or from the *sequelæ* of the disease, should so regulate their diet as to take an excess of carbon daily — the ordinary and requisite proportions of nitrogen, no matter from what

articles obtained, remaining the same. With others, or those with whom the convalescence is complete, no rules are necessary excepting one: this is, to be moderate in eating and drinking, and to abstain from all indigestible articles of diet, as there are few gouty subjects whose digestion is perfect.

The following Table, showing the proportion of Carbon and Nitrogen in different articles of diet, may be useful in the regulation of the diet:—

TABLE FOR CALCULATING DIETS.

Articles.	Grains in 1 oz. (or 437 grs.)			
	Water.	Nitrogen.	Carbon.	Salt.
Uncooked Meat (one-fifth bone)	328.	10.35	64.	7.
Cooked Meat (roast) . . .	236.	19.	117.	13.
Bread (white wheaten) . . .	175.	5.5	119.	5.6
Wheat flour . . . .	65.6	7.6	169.	7.4
Biscuit . . . .	35.	22.7	183.	7.4
Rice . . . .	43.7	3.5	176.	2.2
Oatmeal . . . .	65.6	8.7	172.	13.
Maize . . . .	59.	7.	176.	6.
Peas (dry) . . . .	65.6	15.	161.	10.
Potatoes . . . .	324.	1.	49.	4.4
Carrots . . . .	398.	.4	18.	3.
Butter . . . .	26.	.2	315.	11.8
Eggs . . . .	321.	9.3	71.5	4.4
Milk . . . .	380.	2.75	30.8	2.6
Cheese . . . .	161.	23.	162.	23.6
Sugar . . . .	18.	—	187.	2.

With respect to that moot question, the use of wine, or stimulants, it is not necessary to say much. In acute attacks, all stimulants should be avoided, until the fever subsides, and the pain and external inflammation have abated and disappeared. After this, a glass or two of Sherry, Madeira or Marsala, in the 2½ hours, will do no harm. In chronic gout, on the other hand, as, also, in masked gout, in which symptoms of debility and depression are more or less present, 2 or 3 glasses of wine may be allowed without any risk; on the contrary, they may be useful by favouring the translation of the morbid matter to the surface. But the use of all French wines, with the exception of Champagne, should be eschewed by all gouty patients as so much poison; not only because they generally contain a free acid, in consequence of not being well fermented, but, also, because they are so frequently adulterated. A discussion took place, very lately, at a meeting of the Political Economy Society of Paris, respecting a letter sent by the Syndicate of Paris to the Minister of Paris, on the practice of colouring wines. The Syndicate state, that "the practice of colouring, since the harvest of 1875, has assumed proportions truly disquieting from the point of view of the reputation, the quality, and the future of French wines, not less than from that of the public health and the public morals." The substances employed are principally arsenical,

fuchsine, rosaniline, etc., all of which are poisonous. As to fuchsine, its deleterious effects have been ascertained by experiments on dogs, as well as by the accidental poisoning of a Laboratory Attendant. It has also been long known, that Chablis is frequently adulterated with acetate of lead, an English Baronet having had an attack of paralysis from drinking this wine. I have myself also been laid up three times in France, with severe attacks of dysentery, the effect of some acrid poison contained in the wine that I had drank at the Buffets; and I never venture now to touch a drop of wine when travelling in that country. When at Bordeaux, many years since, a wholesale wine merchant was prosecuted by the Government for selling factitious wine; and it was proved, on the trial, that there was not a drop of wine in the mixture !!

During the intervals of the attack, one of the best beverages for a gouty person, when taken in moderation, as a pint a day for instance, is *bottled ale* or stout, when well up, well fermented, and neither new, nor pricked. This recommendation will, no doubt, be considered a singular one by many, as several Continental Writers have ascribed Gout to the use of beer. The same opinion has been enunciated by Dr. Garrod, who remarks: "A man, deprived of fermented liquors, would never have known gout." This conclusion, if not remarkable, is, like many others of Dr. Garrod, in-

consistent and contradictory : for what is beer? It contains—I am speaking now of genuine, unadulterated beer, not the noxious stuff sold under that appellation at the majority of public houses—a highly nutritive extract, a small proportion of alcohol, and carbonic acid gas in solution. Not being aware that Dr. Garrod deprives his patients, particularly in the intervals of the attacks, of nourishment, there can be no reason why they should not take it in this form, as well as in any other; while as regards alcohol, it is precisely to its use, instead of wine and beer, that this writer attributes the exemption of northern nations from gout. And lastly, no objection ought to be raised to the third ingredient, as it is regularly given by Dr. Garrod in combination with lithia, without which his own remedy would be utterly useless, as previously shown. Instead of being a provocative of gout, beer ought to produce the opposite effect; a conclusion confirmed by daily experience, the disease prevailing more among wine bibbers than among beer drinkers. “Why is it,” asks one writer, “that gout is rare among the drunken beasts, who abound in every large city; and yet common among the intellectual, who are temperate and even abstemious?”\* Many of these drunken beasts take spirits, no doubt, but their principal beverage is beer. If, indeed, beer could produce

\* Med. Times and Gazette, Jan. 15, 1870.

gout, it would be common among the European Residents in India; there being no part of the world in which so much beer is drank as there, with this class of persons. But such a case is hardly known. Van Swietan, in fact, has ascribed the undue prevalence of gout to the disuse of beer: the disease being, he states, little known in Holland before the introduction of wine. These anomalies and contradictions are easily explained. Gout, as we have seen, is peculiar to temperate regions; there precisely where beer is the common beverage, it not being possible to brew beer in a warm climate. A coincidence, therefore, has been mistaken for a cause; a very common error among unphilosophical writers. Not only beer but cider also is condemned by Dr. Garrod. But, in the Appendix of the 2nd Edition of his work, are the following communications, that had been forwarded to the Author, and which negative this conclusion. Dr. Wood of Philadelphia states, that cider cannot be very potent as an exciting cause of gout, otherwise it would be more prevalent than it is among the people of New England, where this drink is in common use. Mr. Haviland also remarks, that on looking over the books of the Bridgewater Dispensary, for a period of 34 years, he did not find an entry of a single gouty patient. He also adds, that at another Dispensary, during 15 years, where the average number of patients is about

250, there were only three cases of pure gout, and these occurred among beer drinkers. Mr. Haviland acknowledges, as we should *a priori* conclude, that there are doubtless many cases of gout in the cider districts; although he has been unable, during a long experience, to establish the fact of a single case having been really due to the drinking of cider.

A few words respecting the use of Tea may not be out of place. As a diluent, during acute attacks, when the fever and inflammation run high, it is most beneficial: but at no other time. There is, perhaps, no greater promoter of indigestion than tea, particularly with the weak and delicate, and with those who do not take wine or stimulants freely. With the latter class, it is beneficial; as it counteracts, by its narcotic properties, the effects of over-stimulation. Gouty subjects, whose digestion is seldom as good as other persons, should keep to coffee, or chocolate—not cocoa.

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